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CONTENTS

The Clinical Significance of Precordial Tenderness. The Relationship of Such Tenderness to Pain. *Frederick Kellogg* and *Paul D. White* 659

An Electrosurgical Method for Aseptic Anastomosis of the Intestine. *J. E. Briggs and L. R. Whitaker* 662

Industrial Dermatoses and Their Treatment. Review of ten years' literature. *John Godwin Downing* and *Claude E. Welch* 666

Notes on Alexander Ramsay and His Anatomic Manuscripts. *James F. Ballard* 681

MEDICAL PROGRESS

Progress in Pediatrics. *John Lovett Morse* 683

CASE RECORDS OF THE MASSACHUSETTS GENERAL HOSPITAL

Case 18131—Four Weeks' Dyspnea, Weakness and Cough in a Man of Forty. *Richard C. Cabot, Aubrey O. Hampton* and *Tracy B. Mallory.* Case 18132 — Albuminuria with Edema. *Richard B. Capps, George W. Holmes, Harold L. Higgins, James Howard Means, Frederick T. Lord* and *William David Smith* 689

EDITORIALS

The Teaching of Medical History 697
New Instrument for Localized Heating 698
A Letter of Approval 698
This Week's Issue 698

(Contents continued on next page)

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CONTENTS

(Continued)

THE MASSACHUSETTS MEDICAL SOCIETY

Attitude of the Committee on Ethics and Discipline on the Proposed Revision of the Medical Practice Act. David Cheever 699

MASSACHUSETTS LEGISLATIVE NOTES 710

BOOK REVIEWS

Electrotherapy and the Elements of Light Therapy. Richard Kovács 716

The Practical Medicine Series — General Medicine Series 1931 716

CORRESPONDENCE

Approving the Action of the Council. Francis P. Denny 710

The Protection of Nurses. George H. Bigelow 711

MISCELLANY

Appointment of Dr. William A. Bryan to the Board of Registration of Nurses 710

The Appointment of Dr. Leland S. McKittrick 708

The Behavior of Nasal Cilia 706

Conditions at the National Hospital for Lepers at Carville, Louisiana 703

The Costs of Medical Care 703

The Dangers of Fat Reducers 706

Deaths from Asphyxiation by Carbon Monoxide 707

Doctors and Liquor Charges 707

Economy in Health Work 709

The Effect of Noise on the Ability of Children to Study 710

Growth of Cancer Retarded 709

Harvard Drinking at Its Low Mark 707

An Honor to the Memory of Dr. J. Armand Bedard. 710

Hospital Nursing in England 709

Lord Moynihan and the Future of Medicine 707

Dr. Lorenz Has Sailed for Vienna 706

Mental Hygiene and Recreation 707

Mortality Rates 707

Mucin and the Treatment of Stomach Ulcers 709

The National Child Health Day 700

A New Medical Center in Philadelphia 709

New York Death Rate 706

Ontario and Cancer 706

The Prevention and Control of Venereal Diseases ... 688

Psittacosis Appears to Be a Thing of the Past in the United States for the Present 709

A Radio Health Talk. Give More Thought to Your Skin 701

Rhode Island Milk 709

Smallpox in China 710

South End Health Program 703

Tenth Annual Advisory Council Meeting of the Milbank Memorial Fund 1932 708

Tuberculosis Drive in New York City 708

Vitamin C from Narcotine 706

The Year's Record of Crime 706

NOTICES 712

NOTICES OF MEETINGS 715

RECENT DEATHS 711

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES 715

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The next Annual Meeting of the Massachusetts Medical Society will be held at the Hotel Statler, Boston, on Wednesday, Thursday and Friday, June 8, 9, and 10, 1932.

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THE CLINICAL SIGNIFICANCE OF PRECORDIAL TENDERNESS—THE RELATIONSHIP OF SUCH TENDERNESS TO PAIN

BY FREDERICK KELLOGG, M.D.,* AND PAUL D. WHITE, M.D.*

PETER[1], a professor of medicine in Paris, observed in 1881 that tender spots were localized over the precordium in cases of angina pectoris. He thought that this sign was diagnostic of heart disease in patients complaining of pain. Allbutt[2] says that many of the early writers on angina pectoris, such as Desportes, Juvine, and Laennec, found hyperesthetic areas. Head thought hyperesthesia of the left chest to be frequent in aortic regurgitation. In Allbutt's as well as in Fränkel's experience tender spots in angina pectoris are often wanting and generally inconstant. Since the observations of these writers precordial and substernal tenderness and its relation to pain have attracted considerable attention.

Mackenzie[3, 4] concluded that there are two factors concerned, the strength of the stimulus and the susceptibility of the nervous system. Thus seemingly identical lesions give rise to unlike phenomena in different people. For example, fatigue exaggerates sensory phenomena and may even produce them in healthy hearts. Also reflex symptoms are greatly exaggerated in highly strung or nervous people who develop functional or organic heart disease. Mackenzie seldom found tenderness in auricular fibrillation, but if rapid failure set in, the hyperalgesia might be marked. He stated that hyperalgesia may follow angina pectoris, being found seldom in men, but much more commonly in women. In 1910 Libman[5] called attention to sternal tenderness in subacute bacterial endocarditis, and thought it due to active regeneration of the bone marrow. He stated that the sign was of more value in a person not sensitive to pain. To test for this sensitivity, he presses over the styloid process, which, in the average person, causes a moderate degree of pain. Parkinson[7], in 1919, found tenderness posteriorly in 10 patients out of a series of 100 complaining of left chest pain. Kahn[8], in 1927, found tender spots over the precordium in 48 patients out of a series of 55 who had angina pectoris. These spots persisted for some time after the attack and kept their same location. Kahn also found tenderness in a number of other types of heart disease, but not in normal hearts. Swift and Hitchcock[9] made a study, in 1928, of cardiac pain in rheumatic fever. They found precordial tenderness in one-fourth to one-half of all cases of rheumatic disease. This sign was even more common in patients showing definite carditis.

Recently Baker[10] made a study somewhat similar to that we are reporting herewith except that left inframammary pain, rather than tenderness, was studied. She found this pain to be a common symptom in patients without physical signs who also complained of a group of symptoms expressive of physical or nervous exhaustion, such as fatigue, dyspnea, sighing, palpitation, dyspepsia, pain elsewhere than in the precordium, fainting, faintness, insomnia, nervousness, giddiness, trembling, and shaking. She found the condition to be of long standing, and to be over four times as common in females as in males. The chief age incidence was in the late twenties and early thirties and also in the late forties and the fifties. The pain often extended to the left scapula, but sometimes simulated in position angina pectoris, with which it had nothing else in common. Usually the only physical sign found was left inframammary and subscapular tenderness. The pain was three times as common in normal patients as in those with organic disease, so that a patient with this pain is more apt to be normal than otherwise.

Because of the lack of knowledge concerning the significance of the common finding of precordial and substernal tenderness, we have made a clinical study of the subject with particular reference to the presence or absence of heart disease. From 3770 consultation cases we have collected 328 cases of definite precordial tenderness, making an incidence of 8.7 per cent. This sign was noted if found present during routine cardiac percussion and palpation. Breast tenderness in women was not an important factor, since it was only when there was greater sensitiveness on the left side than on the right that precordial tenderness was recorded.

Of the total series, 249 patients were females and only 79 were males, so that the sign is more than three times as common in women as in men. However, among the 86 patients known to be dead, the division between the two sexes is

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more nearly equal, there being 49 females and 37 males.

The accompanying figures (Table I) show the age distribution of these 328 cases of precordial tenderness. The age distribution of a control series of 1000 consultation cases[11] is very similar. Precordial tenderness was found more often after the age of forty than before.

TABLE I

SHOWING AGE AND SEX DISTRIBUTION OF THE TOTAL SERIES OF 328 CASES OF PRECORDIAL TENDERNESS AND OF SUBGROUPS OF 124 LIVING AND OF 87 DEAD CASES

	Total Series			Special Subgroups: 124 Living Cases			87 Dead Cases		
Decades	Male	Female	Total	Male	Female	Total	Male	Female	Total
1	1	1	2	—	—	—	1	1	2
2	2	3	5	1	1	2	0	1	1
3	2	22	24	0	8	8	0	1	1
4	6	31	37	1	11	12	1	2	3
5	15	58	73	10	25	35	3	7	10
6	26	60	86	8	24	32	13	12	25
7	21	47	68	7	17	24	12	13	25
8	5	25	30	0	11	11	6	10	16
9	1	2	3	—	—	—	1	2	3
Total	79	249	328	27	97	124	37	49	86

TABLE IV

	Number of Tenderness Cases	Incidence of Tenderness in Each Etiological Group
Rheumatic heart disease	29	5.9
Rheumatic heart disease and effort syndrome	13	17.8
Coronary heart disease	67	9.2
Hypertensive heart disease	23	10.7
Coronary and hypertensive heart disease	34	10.9
Coronary heart disease and effort syndrome	11	28.2
Cardiovascular lues	9	16.1
Effort syndrome (Neurocirculatory asthenia)	85	15.0
Normal heart with arrhythmia	14	4.4
Normal heart without arrhythmia	7	2.3
Unknown etiology	13	3.9
Organic heart disease without effort syndrome	176	8.8
Organic heart disease with effort syndrome	33	23.4
Total angina pectoris	68	12.0
Total coronary occlusion	16	10.0
Cases with no heart disease or effort syndrome	119	7.3

TABLE II

Degree of Tenderness	Total Series of Cases: Males	Females	Total	Cases Heard From More Than Once: Alive and Followed for Over 5 years	Alive and Followed for Under 5 years	Dead Within 2 years of first visit	Dead Within 2 to 6 years of first visit	Dead Within 6 to 10 years of first visit	Living	Dead	Total
+	9	14	23	8	5	5	1	1	13	7	20
++	51	118	169	37	54	31	12	4	91	47	138
+++	18	98	116	19	46	21	5	1	65	27	92
++++	1	19	20	5	1	3	1	1	6	5	11
Totals	79	249	328	69	106	60	19	7	175	86	261

TABLE III

TYPE OF PAIN

Degree of Tenderness	Coronary Thrombosis	Angina Pectoris: Mild	Angina Pectoris: Severe	Other Types: Ache	Other Types: Sharp	Other Types: Ache and sharp	None
+	1	2	2	7	4	2	5
++	15	15	11	71	20	9	27
+++	11	10	6	56	9	4	18
++++	0	2	1	9	3	2	3
Totals	27	29	20	143	36	17	53

Table II shows that the degree of tenderness means little so far as prognosis is concerned. Women, as might be expected, show severer degrees of tenderness than men.

Table III shows that there is no relation between the degree of tenderness and the type of pain complained of. Fifty-three patients who showed precordial tenderness complained of no pain.

The distribution of the cases in which there was tenderness among the various types of cardiac disease is shown in Table IV. Effort syndrome (neurocirculatory asthenia) is common in the tenderness series. The combination of organic disease with effort syndrome is decidedly common in the tenderness series.

Table V shows that congestive failure is twice as common, relatively, in males with tenderness

TABLE V

Association of Precordial Tenderness with	Males	Females	Total	Percentage
Total Cases	79	249	328	
Congestive Failure	19	31	50	15.2
Auricular Fibrillation	8	30	38	11.6
Nervousness	13	121	134	40.8

as in females. Nervousness was noted in 40 per cent of all cases, in 50 per cent of the females and in 16 per cent of the males.

TABLE VI

DEGREE OF SIGHING IN CASES SHOWING PRECORDIAL TENDERNESS

0	+	++	+++
15	12	9	8

Table VI shows the degree of sighing present in all cases in which there was a note as to this symptom. Sighing was present in 29, making an incidence of 66 per cent.

TABLE VII

ACTIVITY OF KNEE JERKS

None	Diminished	Active	Very Active
2	13	147	60

Table VII shows that there is a tendency for the knee jerks to be hyperactive in the tenderness series, presumably because of a hypersensitive nervous system.

Tables VIII and IX are based on the living patients who have been followed up to within most apt to persist in those patients whose general condition remains the same or becomes worse.

Our results agree more with Mackenzie's[3, 4] conceptions and Baker's[10] findings than with those of the other writers quoted above. In particular they differ from the conclusions of Kahn, who found tenderness present in 90 per cent of all patients with angina pectoris and in no patients with normal hearts, whereas we find it present in only 12 per cent of cases of angina pectoris and in 2.3 to 15 per cent of the patients with normal hearts examined. Swift and Hitchcock[9] found tenderness more common in rheumatic heart disease than we do, but their results may well be explained by the fact that their patients were in the acute febrile stage.

CONCLUSION

Precordial tenderness may occur in an individual with a hypersensitive nervous system, whether or not there is serious heart disease. In the present series it was more often found when there was a combination of heart disease and nervousness than with either condition alone. The factor of nervous irritability and fatigue is certainly of greater importance in the production of the sign than is organic cardiovascular disease itself, for in cases of very severe acute and fatal coronary thrombosis there may be no tenderness whatsoever, and in many nervous individuals with perfectly normal hearts there is well-marked precordial tenderness.

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TABLE VIII

	Change in general condition of living patients over period of						Persistence of tenderness over period of			
	More than 5 years			Less than 5 years			More than 5 years		Less than 5 years	
	Worse	Same	Better	Worse	Same	Better	Absent	Present	Absent	Present
Male	—	2	10	1	5	12	6	1	3	4
Female	8	15	34	16	34	38	11	18	9	16
Total	8	17	44	17	39	50	17	19	12	20

a year of the time of this study. They show that the general condition of these patients is apt to improve, that the tenderness is apt to persist for years, and that the tenderness is

TABLE IX

Present state of precordial tenderness	Change in health of living patients followed to within one year			
	Worse	Same	Better	Total
Absent	1	3	17	21
Present	5	19	10	34

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AN ELECTROSURGICAL METHOD FOR ASEPTIC ANASTOMOSIS OF THE INTESTINE*

BY J. E. BRIGGS, M.D.,† AND L. R. WHITAKER, M.D.†

FROM time to time we hear statements from prominent surgeons that no further advances in surgical technique are to be expected. In view of the great scientific progress being made today, it would seem that this is an unjustified assumption, and particularly since the recent gift to the surgeon of such a valuable instrument as the electric scalpel.

There are at least three essentials to intestinal resection and anastomosis.

1. Prevention of contamination of the peritoneum.
2. Preservation of blood supply to the joined ends.
3. The attainment of easy flow of bowel content.

The first is best assured by some aseptic method, whereby the bowel is not opened, at least while the peritoneum is exposed; the second by protection of vessels to the gut, and avoidance of damage to the tissues by handling with forceps, or tearing with sutures; the third by employment of a method whereby peristalsis will be little disturbed and the bowel not kinked or attached to fixed structures.

The old Mikulicz operation protects the peritoneum and preserves the blood supply remarkably well, but it makes a fold in the gut with attachment to the abdominal wall, interfering with its normal action. However, in some surgical conditions of the colon, where the infectivity is high and the blood supply precarious, it is still the procedure of choice.

The Murphy button has the great advantage of avoiding trauma by forceps or stitches to tissues which must heal together. But it favors contamination of the peritoneum, and sometimes blocks the gut for too long a time.

With the open suture method gross contamination is unavoidable, the joined ends of the gut are traumatized by forceps, and there is a tendency to turn in too large a fold, constricting the lumen.

Time factors and other considerations being equal, aseptic anastomosis is obviously to be preferred if it can be attained without sacrificing the other two essentials—preservation of blood supply, and the attainment of easy flow of bowel content.

*From the Surgical Clinic of the Massachusetts Memorial Hospitals, the Evans Memorial, and the Boston University School of Medicine. Aided by a grant from the Committee on Scientific Research of the American Medical Association. The authors are indebted to Dr. Thomas A. Kelley and Dr. Adrian Solo and to Mr. William F. Krause for assistance in this work. The drawings for figures 1 to 4 were made by Dr. Solo.

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Attempts in this direction have been made by many workers, among them Halsted, Collins, Pringle, Fraser, Scarff, Kerr, Rankin, and Partipilo.

Collins[1] applied the principle of placing clamps across the intestine, cutting the gut close to the clamps; then placing the two clamps together, inserting stitches around, pulling out the clamps and closing with additional sutures. Rankin[2] devised a double clamp which was easier to handle than the two used by Collins. The two bowel ends are held side by side close together facing in the same direction; infolding stitches are placed around the end of the clamp which is finally withdrawn, and the opening closed. This turns in too much tissue on one side (the top as the clamp is applied) and does not allow accurate approximation. What appears to be the best clamp for aseptic intestinal anastomosis has been devised by Partipilo[3]. Two clamps, resembling the Payer somewhat, are arranged to be attached side by side with their jaws in close approximation. With a clamp on either end of the gut to be joined, they are fixed together; stitches are placed all around, the clamps finally being loosened and withdrawn, and the opening closed. Since the clamps have some thickness this method does not allow accurate approximation of the bowel edges, although it is an improvement over the Rankin clamp in this respect.

Anastomosis by the basting stitch method of Kerr[4] has possibilities. The gut ends are closed by a basting stitch over a clamp, the ends being left long and untied. The stitch is tightened as the clamp is removed, keeping the gut closed. Both ends are prepared in this manner. Mattress sutures are placed all around, joining the ends, and the basting stitches withdrawn. This also infolds considerable tissue and does not allow good approximation.

By all these methods many slips are possible, especially when the clamps or basting stitches are withdrawn, with a loss of asepsis.

The electrosurgical method to be described is an application of a principle for aseptic gastroenterostomy already published by the present authors[5]. It is easy to perform, reduces the chance of contamination, does not damage the tissues or the blood supply to the ends of the gut, favors accurate approximation, and prevents excessive infolding.

The steps are illustrated in Figures 1 to 3, and the immediate result in Figure 4.

Crushing clamps are placed across the bowel, followed by ties of heavy braided silk at either end of the section to be removed, the ties be-

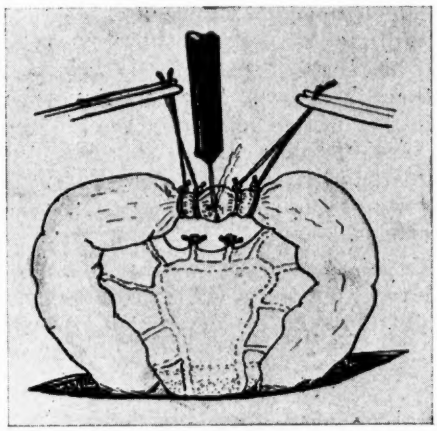

FIG. 1. Gut being sectioned with the cutting current, high dehydration; high voltage. The needle is held on the side to increase the cautery effect for sterilization. One tie on either end is sufficient if not placed too close to the point of section.

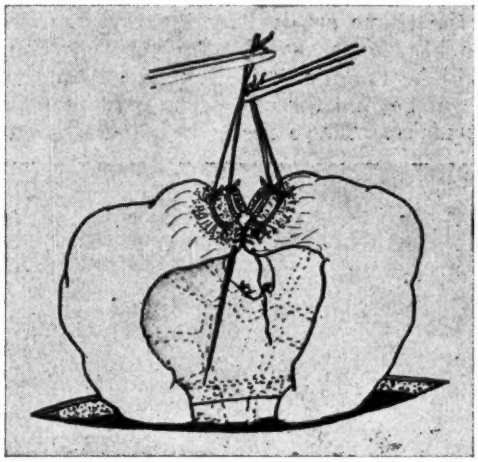

FIG. 2. After placing a crushing clamp across the gut for demarcation either end is thoroughly fulgurated until blackened, care being taken to avoid excessive drying of the adjacent serosa. A few of the outer row of mattress sutures are placed first on the mesenteric side; then the inner row, closely approximating the charred edges, is inserted all the way around, infolding the ends. (The ties on the stumps can be knotted together.)

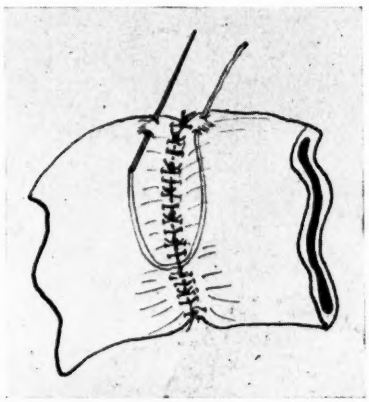

FIG. 3. The outer row of mattress sutures is then finished, care being taken to pick up the sub-mucosa. The stitches should be small, close together, not tied too tightly, and placed about 3 to 4 mm. from the first row.

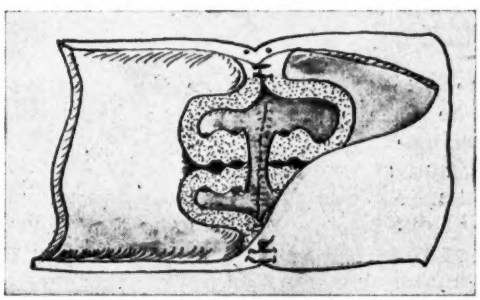

FIG. 4. Shows the infolded, devitalized "button" which has served to facilitate placing the sutures and to prevent constriction of the lumen. Note the accurate approximation of the edges of vital tissue by the inner row of stitches, shown above.

ing about one to two cm. apart, depending upon the thickness of the bowel.

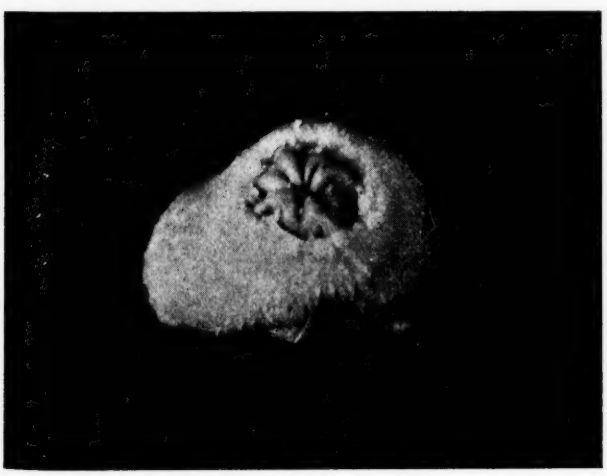

FIG. 5. A section of bowel represented by Fig. 4 with one end turned back to show the puckered diaphragm of coagulated tissue. Note the sharp line of demarcation between this and the normal mucosa. Specimen taken two hours after operation was performed.

The section of the gut should be only a short distance from mesenteric vessels to insure good blood supply. Then using the cutting current with high dehydration, the tissue is cut through between the ties. To increase the cautery effect and insure sterilization of the surface, progress should be slow. The active electrode used is preferably a wire tip, the contact being made with the side rather than the point. This sears as it progresses. Then the cut-off stump should be thoroughly dehydrated by sparking or fulgurating with the coagulating current to insure asepsis. The illustrations show two ties on either stump. These are applied merely for safety. One is sufficient if it is placed far enough away from the cut end to avoid slipping off as the tissue shrinks under dehydration. Yet too large a "button" should not be left or there will be difficulty in infolding. The excess tissue can be trimmed off with the cutting current. Then a crushing clamp is placed across the cut end of the gut at right angles about one or two centimeters from the tie, or at the distance from the tie where the gut attains nearly its full diameter. This serves the double purpose of making a mark for the stitches and of aiding destruction of the tissue up to this line. With the coagulating current the whole cut end of the gut is dehydrated by fulgurating sparks, includ-

ing the tissue crushed by the clamp. There is some heat generated by this process and care should be taken not to dry too much the normal gut beyond the line. The surface should be kept moist. There must be a good blood sup-

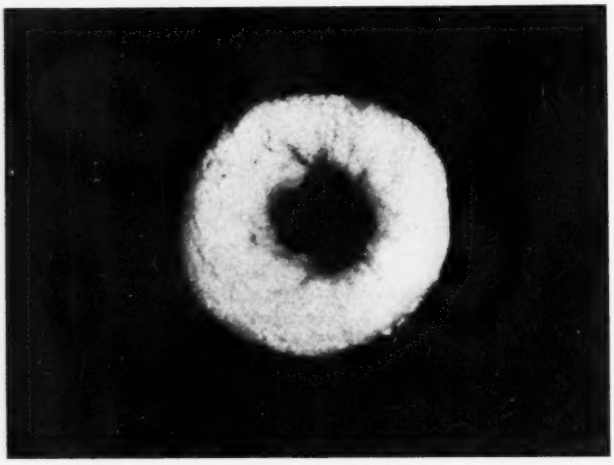

FIG. 6. Looking through the lumen of a specimen taken one month after the operation. There is very little constriction. The cut edges of the gut have turned outward due to elasticity of the tissue, making the hole appear smaller in proportion than is the fact.

ply up to this line where the anastomosis is to take place. With care the small vessels in the immediate vicinity are preserved remarkably well, and at the end of the operation we have often noted small arteries pulsating on the intestine one centimeter from the anastomosis.

Two rows of fine mattress sutures are placed all around, those on the mesenteric border being applied first. The inner row can be of silk,

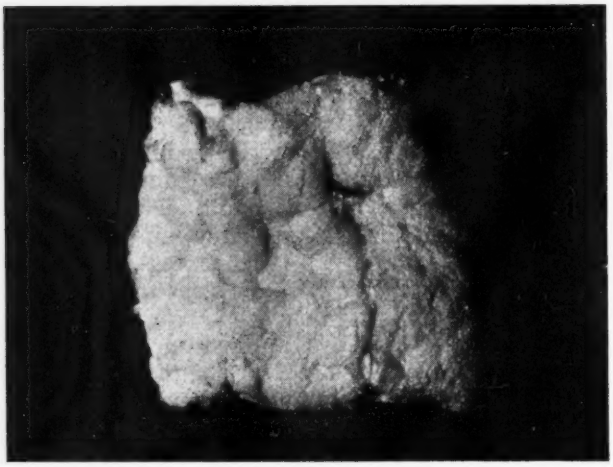

FIG. 7. Shows two anastomoses in the small intestine of the dog—that on the left 14 days old, perfectly healed, and that on the right one day old, the "button" having sloughed and the mucosal edges being accurately approximated except at one point; the serosa had already become firmly sealed.

and should be applied in the normal tissue very close to the line of devitalization. This secures accurate approximation and does not leave a wide granulating strip for fibrosis and contraction to occur. (Figs. 7 and 8.)

The second row of mattress stitches may be of very fine chromic catgut and should be close together, properly spaced, and only three or four millimeters outside the first row. Care should be taken that all the stitches go through into the submucosa. They must not be pulled up tightly or they may cut through the tissue, or at least devitalize it. *If anything gives way it will be the tissue, not the suture. For this reason there must never be tension on any anastomosis.*

During the suturing the gut is handled with the gloved fingers—never with forceps, they are too damaging. It is important, even, to preserve the serosa in order to prevent crippling adhesions. Drying as well as trauma should be avoided.

In Fig. 4 the devitalized ends are seen to form a sort of "button" which facilitates placing the

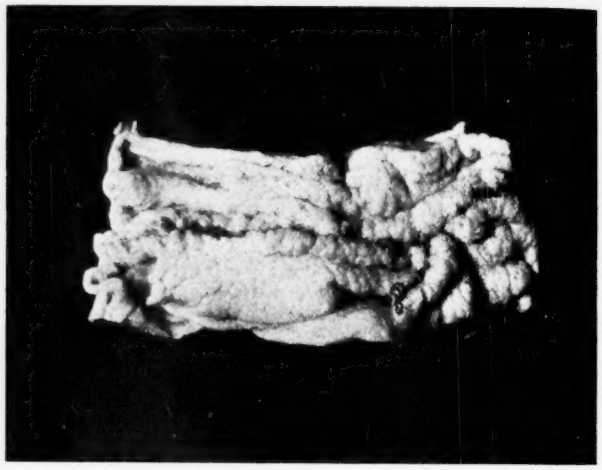

FIG. 8. Mucosal surface of a section of rabbit's colon taken five days after the operation—the line of anastomosis running transversely.

sutures without excessive infolding. Fig. 5 shows a specimen such as Fig. 4 would represent with one end turned back and viewed endwise. Figures 6, 7, 8 and 9 show specimens from dogs and rabbits taken at varying intervals after the anastomosis.

The devitalized "button" of tissue sloughs out in 24 hours or less. Four specimens taken early showed a needle-sized opening in one at 6 hours, and a full-sized opening was present in three specimens in from 16 to 24 hours. The rapidity of sloughing depends to some extent upon the degree of crushing by the clamp which demarcates the area to be devitalized, and upon the degree of charring by fulguration. Through application of the current for a minute or more and then moistening and applying again, an eschar can be made which is firm while dry, but softens rapidly under the action of tissue and intestinal juices. It makes no difference what part of the intestine is concerned since the sloughing apparently comes about as rapidly in the colon as in the duodenum. None of our ex-

perimental animals have shown signs of ileus, and opening has never failed to occur.

An objection may arise that the lumen of the gut is not made patent immediately, but that obstruction is prolonged. It should be remembered that for some hours or days after an operation in which the intestines have been manipulated there is a virtual blockage in the form of a traumatic inhibition of intestinal musculature. This may account for the fact that even though we mechanically relieve intestinal obstruction the patient often dies as if nothing had been done. For this reason enterostomy is now almost universally accepted as a preliminary or concomitant of operative relief of obstruction. Sometimes an enterostomy alone will save the life of a patient in extremis, and the causal factor can be removed later under more favorable conditions. Anastomosis of the colon should be accompanied with or preceded by cecostomy or colostomy. In view of these things it would seem that the temporary obstruction of the procedure in question is not disadvantageous.

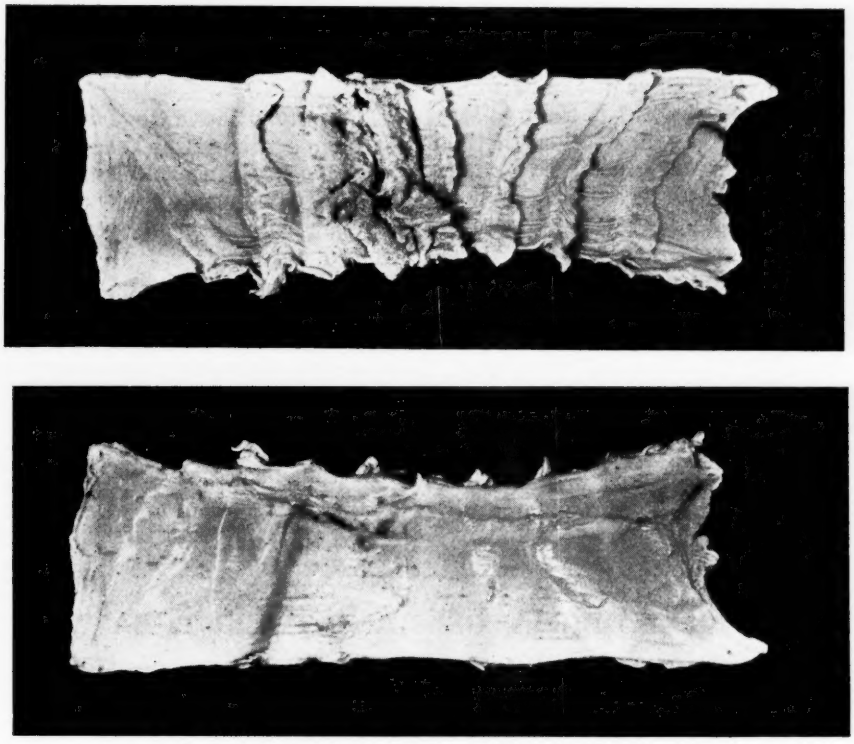

FIG. 9. Showing an excellent late result in the colon of a rabbit—the line of anastomosis running vertically. The mucosal surface is shown above and the serosal, below. An idea of the thinness of the wall can be obtained by noting on the serosal surface the shadows of the folds in the mucosa. The specimen was taken several months after the operation.

Aseptic anastomosis by electrosurgery can be adapted to any type of operation in any part of the alimentary tract. Its experimental application in gastro-enterostomy has been reported[5]. It may be used in the Polya type of gastrojejunostomy by cutting off the distal segment of the stomach between clamps, closing with a silk basting stitch, devitalizing a zone of tissue at the closed end, and then suturing in approximation to a corresponding devitalized area on the jejunum.

The stomach, however, has the disadvantage for this method, of a thick muscular wall. This must be removed over the area to be fulgurated in order to make sure of penetration to the mucosa. But, even so, perfection is not attained. The thick wall of the stomach prevents close approximation of its mucosa with that of the intestine, leaving a wide rim of granulating surface on the inside at the line of anastomosis. This favors cicatrization with contraction of the stoma. An attempt is being made to correct this fault by leaving a vital zone of denuded submucosa on the stomach between the devitalized area and the cut edge of the musculature. When the charred areas on the stomach and intestine are approximated and the walls joined by sutures, the cut edge of the stomach musculature is covered by a flap of mucosa. Experimental operations have yielded good results, but this extra step complicates the operation somewhat.

In the intestine, where the thick muscular wall is not a factor, any type of anastomosis may be performed electrosurgically with advantage—lateral, end to end, or end to side. Even an aseptic enterostomy is possible by fixing the end of a rubber tube on the wall of the gut, infolding it and then perforating the wall through the lumen of the tube by means of a special electrode, using the cutting current, with the free end of the tube at a safe distance from the peritoneal cavity. Electrosurgery may be employed in removal of the appendix, its advantage over the cautery resting in more specific and localized application of heat, making it safer, especially for use deep in the abdominal cavity.

Experimental Results: End to end anastomosis in the manner described has been performed

34 times in dogs, upon 27 different animals, with 5 deaths. These came largely in the first of the series. With the last 19 dogs used there was one death, and in this case the operation was performed by one unfamiliar with the method. For one reason or another the result was counted a failure in two other cases.

The anastomosis was done in all parts of the intestine; in the duodenum six times with two failures; in the ileum five times with one failure; in the colon six times with one failure; and in the jejunum seventeen times with three failures.

The procedure was carried out four times on the colon of the rabbit with one failure, the first. This was done as a test, since the wall of the rabbit's colon is very thin, and would be at least very difficult to handle by any other method. The excellent results here are illustrated by Figs. 8 and 9.

In both dogs and rabbits, the animals were kept several months after the operation. (See Fig. 9.)

The method here presented experimentally is now being used upon man with gratifying results; for example, in one case the cecum and part of the ascending colon were resected with end to side anastomosis of the ileum. The patient suffered extremely little discomfort; there was no postoperative vomiting or distention; gas was passed the third day; and a barium meal taken ten weeks afterward showed no delay in emptying of the intestine or restriction of the opening.

SUMMARY

1. A new method for aseptic anastomosis of the intestine by electrosurgery is described. It consists essentially in devitalization by fulguration of an area the size of the proposed stoma on either end or side of the gut to be joined, followed by careful approximation and fixation with a double row of mattress sutures. See Figs. 1 to 4.

2. The advantages are ease of execution, reduction of trauma and danger of contamination to a minimum, accurate coaptation of the joined edges without excessive infolding. See Figs. 7 to 9.

The only disadvantage is blockage of the gut for 12 to 24 hours until the devitalized "button" sloughs out. Since in obstructive cases enterostomy or colostomy should always be performed, however, there is no real objection on this ground.

3. Experimental results have been excellent.

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INDUSTRIAL DERMATOSES AND THEIR TREATMENT

Review of Ten Years' Literature

BY JOHN GODWIN DOWNING, M.D.,* AND CLAUDE E. WELCH, A.M.*

INTRODUCTION

INDUSTRIAL dermatoses form about 20% of the practice of urban dermatologists. Notwithstanding its importance, only isolated American articles have appeared on the subject. In view of the rapid advances in industry, it has seemed of value to review briefly the literature which has appeared within the past ten years in America, as well as those foreign articles which contain references to the dermatoses likely to occur in this country.

Reference is made to the industrial process involved in the production of the dermatitis, and the lesions are briefly described. The treatment recommended, when of value, being of especial interest to the practitioner, is reviewed in detail.

For a general survey of the field several more extensive treatises should be consulted. Foremost of these is R. P. White's "Occupational Affections of the Skin"[156]. It is a complete description of all types of industrial dermatitis. M. Oppenheim in his "Occupational Injuries of the Skin"[98] discusses the etiology and history of industrial dermatoses, as well as describing the various lesions. A very thorough treatment of the entire subject, but unavailable in translation, is by Ullmann, Oppenheim and Rille. Weber[153] has compiled a list of all the cutaneous irritants which he has been able to discover in the literature. For a complete discussion of the hazards of industry, Alice Hamilton's work[49] should be read.

The large number of cutaneous irritants renders some type of classification necessary. The chief bases of division are (1) the type of agent, e.g., whether a plant or a definite chemical compound; (2) the industries which employ this agent; (3) the type of lesions it produces, both with regard to pathological changes and the location in which the lesions are found; or (4) the physiological cause of the dermatosis.

Of these the second method is of least value

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since the demands of each industry are constantly changing and without an understanding of the causative agent the clinician cannot proceed to a specific treatment. On the other hand this method is necessarily employed in cases in which a dermatitis appears fairly constantly, the causative agent of which has not been determined.

The third method also has its shortcomings since nearly all irritants produce varying degrees of pathological change, depending upon the strength in which they are applied and the time period over which they act.

Without doubt the most scientific classification is that based upon etiology. Oppenheim has drawn up a very complete list based upon chemical and biological activities of the various irritants. The practitioner, however, is satisfied with a less critical division since he is interested in prevention and treatment rather than the explanation of the action of each substance.

In this review the first basis of classification will be followed. Irritants will be grouped as follows:

(1) Mechanical or physical agents, i.e., abrasions, heat, cold, actinic rays, friction.

(2) Flowering plants and their products—resins, lacquers, wood dusts.

(3) Vital agencies:
  a. Bacteria, yeasts, molds.
  b. Members of the animal kingdom—mites, etc.

(4) Chemical agents:
  a. Inorganic compounds — acids, bases, salts.
  b. Hydrocarbons and crude coal tar products—oils, tar, pitch, etc.
  c. Other organic compounds.

MECHANICAL OR PHYSICAL AGENTS

The dermatoses caused by members of this group are produced by (1) heat or cold; (2) radiation (radium, x-ray); (3) electricity; (4) mechanical irritation (pressure, friction, cuts, and pricks); and (5) mechanical interference with bodily function.

The causes and pathological sequences of the injuries produced by these agents are more accurately known than for any other group. Such lesions are widely distributed in industry and must be considered in any differential diagnosis. In general, the causes are so well determined and the pathology so well known that there has been little recent discussion of these agents in the literature. R. P. White's "Occupational Affections" should be consulted for a full treatment.

(1) *Heat or Cold*

Weill[155] has reported a case of hyperpigmentation of the skin above the waist in a man who had been exposed to the heat of rolling mills of an iron works for three and a half years. The skin of the abdomen and legs, protected by trousers, did not darken.

Fish-salters, who stand for several hours a day with their feet in icy water, suffer a dystrophic-atrophic dermatitis[166].

(2) *Radiations*

These are produced by x-ray or radium; actinic (ultraviolet) rays produce lesions similar to those caused by heat. The characteristics of these lesions are superficial inflammation, atrophy of the skin, and pigmentation. The epithelium is less affected than the rest of the skin. It tends to proliferate and may, after years, develop into epidermoid carcinoma. Telangiectases almost invariably appear from x-ray burns after a period of six to eighteen months.

Dubreuilh and Chauuse[34] have differentiated two types of radiodermatitis—acute and chronic. The chronic, due to small doses of roentgen ray for many years, shows pigmentation, hyperkeratosis, epitheliomas, and probably neuritic ulcers. Acute types exhibit ulcers which tend to recur after apparent cure.

The mild erythema produced by x-ray is adequately treated by a calamine lotion. If necrosis of the skin is produced by heavy radiation, healing is slow and difficult. Malignant degeneration must be treated by surgical measures.

Rough, ridged, dirty nails often appear on x-ray workers. Pope[108] recommended a treatment; after cleaning the hands with soap, brush and hot water at night, they are dipped into very cold water for a few seconds, and then dried. Olive oil is rubbed on the hands and worked into the edges and corners of the nails by an orange-wood stick. The surplus oil is left on the fingers and gloves are worn overnight. In the morning the hands are again cleansed and rubbed with oil, and the oil removed. This treatment is continued for six weeks, then the nails are trimmed and a manicurist's glaze applied.

(3) *Electricity*

Electric burns are painless and aseptic. They tend to heal rapidly if superficial but are very slow to repair if deep. The essential in treatment is to keep the dead tissues aseptic. If possible, the burned area should be excised to prevent ensuing toxemia.

(4) *Mechanical Irritation*, i.e., cuts, pricks, friction and pressure

Mechanical abrasions due to harsh soaps are frequent. Continued irritation with sand has caused a dermatitis. The eruptions of plasterers and paperers are dependent on mechanical roughening of the surface of their skins.

Of especial importance are the skin diseases

caused by lubricants. The most typical eruption is acne-like. It first appears symmetrically on the parts of the body exposed to the lubricant, later on covered areas. The arms and legs are chiefly affected, while the hands and feet remain clear. The lesions appear first as numerous black-tipped follicles; they slowly become surrounded by erythema and, finally pustulate.

An investigation made by the English Department of Scientific and Industrial Research[31] is quoted herewith:

"Oil rashes are, generally speaking, of two kinds—the first is due to the plugging of the small glands at the root of the hairs on the arms and legs of workers, the second to mechanical injury to the skin produced by mechanical particles suspended in the cutting lubricant.

"(a) Plugging of the gland of the air follicles. Primarily this is purely mechanical; a mixture of oil and dirt blocks the minute openings of these glands and sets up inflammation round the hair causing folliculitis. The inflammation commenced in this way may lead on to suppuration or abscess formation. If many hairs are affected the arm presents an appearance of a crop of raised spots (papules), with a black spot as a center, or if the inflammation has gone as far as suppuration, a yellow head.

"(b) Mechanical injury to the skin by metallic particles. Minute metallic particles suspended in the cutting lubricant may produce injury to the skin. This occurs chiefly on the hands, where two surfaces are rubbed together, e.g., the skin between the fingers. Injury to the skin may also be produced on any part of the hands and arms by wiping with a cloth or rag while the hands or arms are coated with a film of fluid in which metallic particles are suspended. Injury to the skin allows germs to enter and causes septic infection."

These suggestions are made for prevention of this common form of dermatitis:

"(a) Cleanliness of the worker. Washing accommodation for workers in contact with oils must be on a liberal scale. Hot water, soap, and scrubbing brushes are essential. Workers should be instructed not to wipe their hands on rags, etc., before washing, and to avoid washing their hands in the cutting compounds.

"Soap which dissolves the oil has been found useful in preventing inflammation of the hair follicles. Dusting the arms with a powder containing equal parts of starch and zinc oxide before commencing work prevents action of the oil on the skin.

"(b) Cleanliness of the lubricant. Care must be taken in the handling of the constituents before blending that they may not undergo changes (e.g., formation of free fatty acid). Constant removal of metal particles is necessary to avoid irritation to the skin. Filtration, such as is provided on the machines, and centrifugal action are insufficient to remove the minute metal particles which injure the skin. Where cutting oils (straight oils) are used, their viscosity can be diminished by heat sufficiently to allow the particles to sink without affecting their value as lubricants. This operation completely removes all metal particles. In other lubricants where such a procedure is impossible it is necessary constantly to change and renew the cutting lubricants.

"(c) Cleanliness of the machines. Frequent cleaning of the machines with the removal of all the old lubricant from all parts of the machine is essential."

The General Electric Company[121] has developed a protective soap (Hand cream No. 406) to use on hands before exposing them to oil or grease. The cream forms a film which keeps the oil and grease from the skin and washes off readily with water and soap. It is also used as a protection against irritating varnishes and lacquers. The formula of the cream is:

Gum arabic	4#
Soap chips	19#
Water	74#
Hydrous wool fat	2#
Oil of lemongrass	128 gm.
Acid red	to color

Pottery workers observed by Barettoni[8] showed a loss of surface epithelium of the hands on the palms and palmar surfaces of the fingers. It is due to friction abrading the fingers which are moist from clay. Secondary infection is rare.

Female glaze pourers, according to Kavalerow[63] developed similarly brittle nails, dry skin, and because of the adherent glaze particles, excoriations.

Mule spinners' cancer, according to Robertson[124] is due chiefly to continued mechanical irritation. The definite etiological factors are (1) the dirty scrotum; (2) the dye; and (3) the friction of the overalls. The harsh cloth and the rough seam at the crotch act upon the scrotum, which is the spot where the epithelioma always appears. The use of an inelastic brace aggravates the friction.

(5) *Mechanical Interference with Bodily Function*

Illustrations of this type of agent are found in the oil rashes discussed above. The same type of lesion is found in the jute mills in which mineral oils are used for softening the jute. The oil mechanically fills the hair follicles, prevents excretion of skin débris, and thus causes folliculitis and itching. The remedy, according to Acton and Curjel[27], who have reported a series of cases from the Indian jute mills, is merely additional cleanliness.

FLOWERING PLANTS AND THEIR PRODUCTS

It should again be emphasized that this is not

a complete list of all the plants producing irritation of the skin (q. v. reference 153), but only of those which are of importance in the various industries. Those mentioned in the literature of the last ten years are as follows:

(1) Woods—teakwood, cocobolo, oak.
(2) Extracts and resins—cashew, vanilla, resin dusts, lacquers.
(3) Herbaceous plants (leaves, flowers, fruits or roots)—asparagus, barley and malt, celery, chamomile, flax, hops, grain dusts, pyrethrum, rice, tobacco, tulips.

(1) *Woods*

The important woods productive of dermatitis include redwood, teak, cocobolo, mahogany, boxwood, satinwood, chestnut, and oak[137]. The irritation produced usually resembles that of poison ivy, and the lesion is also similar. In the case of the chestnut, however, there is found a marked thickening of the skin of the hands. Systemic effects, such as headaches and anorexia, may appear from the absorption of the essential oil.

Teakwood is especially irritant to the skin in the form of dust. According to Hoffmann[57], the irritant substance is free unsaturated resinic acid.

Ruedemann[125] recommends soothing lotions and mildly astringent washes in early cases. Change of occupation is occasionally necessary in the more severe types.

(2) *Extracts and Resins*

Cashew nuts contain an irritant principle, oil of cardiol. This oil is used to color or preserve vanilla pods and thus is a causative agent of irritation due to vanilla. Whether it is the sole cause is not known. It is also used for laundry-marking ink, while the nuts are used as substitutes for almonds and other nuts.

Neubauer[86] reported the case of a workman who showed severe itching inflammation of the skin with bright red spots on the hands and several on the face, which were presumably transferred from the hands. The author, by experiment, found that the oil is taken up by the circulation and produces a toxic effect; this explains the accompanying headaches, especially of laundry workers. Workers should rub the hands with vaseline before handling the product, wear suitable gloves during the process, and wash carefully afterwards.

A case of dermatitis occurring on the second and third fingers of a violinist as the result of resin dust particles falling from the violin bow over the fingers showing the eruption was observed by Beinhauer[9].

Lacquers are frequently the cause of a dermatitis. The varnish is collected from the lacquer-tree (Rhus vernicifera), a plant closely related to poison sumac (Rhus venenata) and poison ivy (Rhus toxicodendron). The poisonous substance is "urushiol"[143, 4, 5] of which the Chinese lacquer contains approximately 35-70% and the Japanese somewhat more. In the less common Burma and Indo-Chinese lacquers the poisonous ingredients are respectively, thitsiol and laccol. The poison is partially non-volatile; it has been shown to be harmful after 1000 years.

Irritation from this cause has appeared in Hawaiian pineapple factories, where cans pass through a bath containing one part of the lacquer to five of gasoline. The handlers of the cans, according to Wayson[152], have shown a lacquer dermatitis. A seller of toy canes was reported by Pusey[110] to have shown a dermatitis proved to be due to the lacquer on the canes.

The dermatitis is of the acute papulo-vesicular type resembling that of poison ivy and yields to the same treatment. Pusey used aluminum acetate solution in his case with success. Williams[162] has treated it with Rhus toxicodrendron antigen and concludes that "it is evidently in support of the belief that the poisonous principle in Rhus vernicifera is the same as that in Rhus toxicodendron and strong evidence that Rhus toxicodendron may be useful in any form of Rhus poisoning".

(3) *Herbaceous Plants* (Leaves, Flowers, Fruits or Roots)

(a) Asparagus. Several cases of sensitizations in persons working with this plant have been reported. Brenning[14] has reported a case which suddenly became sensitized to it after working with it for eight years. The dermatitis is mild, varying from erythematous to papular and vesicular lesions[132,139]. It appears on the exposed parts.

(b) Barley and malt. Dermatitis due to barley pollen is discussed by Hodera and Behjet[56]. A so-called "barley-itch" occurs at times in handlers of barley, especially dock workers[3] (1924). It is usually due to a parasitic acarus. The lesions thus produced are erythematous with superimposed, confluent vesicles or wheals on the exposed parts.

(c) Celery. Celery-gatherers have been reported by Legrain and Barthe[74] to suffer from a rash which closely resembles that caused by cow parsnips. The rash is papulo-vesicular, appears on the hands and faces of the handlers, and itches a great deal.

(d) Chamomile. This weed caused a dermatitis on the hands and feet of those gathering flax, according to D'Agostino[28].

(e) Flax. The dermatitis occasionally observed in flax-gathers, is not due to the flax itself, but to contaminating weeds[28]. Flax-spinners sometimes present a superficial exfoliation of the skin of their hands. Ulceration finally ap-

pears, but no other lesions. Flax-soakers often develop a vesicular rash due to the hot chemical solutions in which they dip their hands.

(f) Grain dusts. Workers with grain suffer from two kinds of dermatoses[114]. The first is due to a mite and will be treated in the next chapter. The second and more common, has less definite etiology. It is believed to be due to the irritation of grain or straw dust superimposed upon an already irritated skin of such a kind as that suffering from heat rash. The dust contains foreign proteins as well as dirt and other vegetable materials.

Alkaline wet dressings or washes are often of value in treatment. The itching may be relieved by lotions containing phenols. Dusting powders —talc or starch—may be used.

(g) Hops. O'Donovan[89] and Galbraith[42] have described the types of occupational affections from which hop-gatherers suffer. They are three: namely, a dermatitis, an acute conjunctivitis, and "hopper's gout". In the last of these the wrist joint which came in direct contact with the hops is swollen and tender. The dermatitis appears on exposed parts, especially the hands, wrists, face, and the genitals; closely packed vesicles on an erythematous base appear, but disappear in a few days. The rash is often mistaken for erythema solare, impetigo, erysipelas, or urticaria.

(h) Pyrethrum. Pyrethrum insect-powder makers exhibit occasional dermatoses, according to McCord[80]. The powder is made from the flowers of chrysanthemum, a plant which grows in California and the Orient. The lesions appear in about a third of the workers engaged in grinding the dried flowers. The lesions are usually vesicular, but may be papular, merely erythematous, or anaphylactic in type. Removal from the irritant, combined with the application of a bland ointment, is the most satisfactory treatment. Preventive measures include scrupulous cleanliness, a wash of dilute sodium bicarbonate, and the application of petrolatum to the exposed parts of the body before beginning work.

(i) Rice. Dermatitis due to rice has been reported by Alderson and Rawlins[2].

(j) Tobacco. Dermatoses are reported in tobacco-handlers, but it is probable that they are not due to the tobacco *per se*. Thus tobacco rollers suffer from a dermatitis caused by olive oil which is dropped on the leaves to aid the process. Cigar-makers may suffer from a coccidioidal infection. Inflammatory lesions are common, often progressing to cellulitis.

(k) Tulips. Overton[100] states that handlers of tulip bulbs have shown a dermatitis restricted to the fingers, of a perinychial or hyponychial type. It has been experimentally reproduced. It may be prevented by wearing gloves.

VITAL AGENCIES

The causative agents of dermatoses which are found in this group may be placed in the following classes:

(1) Vegetable kingdom (Fungi).
   a. Bacteria (Schizomycetes).
   b. Yeasts (Blastomycetes).
   c. Molds and Oidia (Hypomycetes).
(2) Animal Kingdom.

Vegetable Kingdom

(a) Bacteria. Important bacteria from an industrial point of view include staphylococcus, which produces a low-grade furunculosis, and an unknown bacterial agent which produces the lesions included in the term "erysipeloid". The prevalence of the lesions due to staphylococcus is indicated in an editorial from the *J. A. M. A.*, which says in part:

"Occupational furunculosis has become so prevalent as to be known by identifying names applicable to the trades in which it occurs. 'Salt infection' and 'sugar boils' are recent instances. Medical literature reveals its common occurrence among ice cream handlers[116,168], beet sugar workers, butchers, lathe operators, bakers, oil workers, machinists, soap makers, tallow refiners, cold storage workers, fertilizer makers, tar workers, and street sweepers. The individual cases in each locality may be few but their number in aggregate demands attention. In ice cream handlers, in whom the skin is exposed to rock salt and water, salt infection is said to be due to 'seeding' the hair follicles with pyogenic organisms normally on the body and in the extraneous dirt that comes in contact with the skin. In beet sugar workers sugar boils are said to be due to sugar dust and perspiration forming a culture medium suitable for the proliferation of these organisms on the body surface. In lathe operators it is said to be due to an infection of the minute wounds made by small pieces of metal that pierce the skin in the course of the work, or to the sealing up of organisms in the hair follicles by the oil which comes in contact with the skin, or to organisms being deposited there by the oil. In cold storage workers it probably results from lowered body resistance due to sudden and frequent changes in the temperature. In the other occupations it is also a natural outcome of the job, in which the organisms normally found on the skin get a foothold as a result of conditions under which the work is done. It is the most common skin disorder among workers in the oil and sugar industries and is frequent in all occupations in which workers use their hands. The disease may be localized or systemic, depending largely on the general condition of the patient. If it becomes systemic, it may lead to osteomyelitis, pericarditis, or endocarditis. The organisms most frequently found are Staphylococcus albus and aureus."

Erysipeloid has long been recognized as a clinical entity. Its etiology, almost certainly infectious, has not been established with complete satisfaction. The bacillus of swine erysipelas, according to Acel[1], seems to be the most probable agent. The dermatosis is most common in those engaged in handling meat and fish. Crab bites, scratches from fish bones, and butchering of pork are the most common injuries leading to infection. Within twenty-four hours a characteristic purplish-blue redness with swelling appears on the injured finger and extends rapidly over other fingers or to the wrist. The lymph glands usually enlarge and become tender but do not suppurate. The attack lasts from two to six weeks. It may be distinguished from erysipelas by an almost complete lack of constitutional symptoms, although fever and headache are usual during the first twenty-four hours.

Klauder and Righter[67] have reported about a thousand cases of erysipeloid occurring in commercial fishermen along the New Jersey coast. The first cases recorded in the French literature were observed by Dubreuilh and Jouita[35].

(b) Yeasts. Yeasts have been recognized as the cause of a few dermatoses. They are relatively infrequent, however, and cases reported as such may belong to the group of mycotic infections.

(c) Molds and Oidia. The agents included in this group of mycotic infections are actinomyces, blastomyces, coccidia, sporotricha, and other unidentified fungi.

The prevalence of sporotrichosis as an occupational disease has only recently been emphasized. Foerster[39] has reviewed 148 American cases. Of these 111 showed a primary involvement of the distal parts of the upper extremity. The disease, of world-wide distribution, is endemic in certain parts of the temperate zone, particularly in the Mississippi river basin. The disease occurs in outdoor workers, as farmers and horticulturalists. It is possible that the barberry may be the host of the fungus.

Coccidia produce several types of lesions. Besides a simple dermatitis, osseous and pulmonary involvement may occur. Cummings and Smith[26] have made an epidemiological survey of the disease. When localized internally, the disease closely resembles tuberculosis. It can only be diagnosed by smears of pus or tissue containing the double-contoured, endosporulating cell. Confirmation is by inoculation into male guinea pigs, in which suppurative orchitis appears.

The visceral lesions reported have been seen chiefly in outdoor workers in California. Seilin[134] has reported a case occurring on the hands of a cigar-maker. There was localized dermatitis for nine years, with periods of spontaneous improvements and exacerbation. It was promptly cured by local administration of 1% copper sulphate ointment and internal administration of potassium iodide with hypodermics of emetine chloride. Pulford and Larson[109] concluded from the study of a case that gentian violet and roentgen treatments appear to have a temporary beneficial effect, while colloidal lead, colloidal copper, and vaccine had no effect on infections with Coccidioides immitis.

Canter[19] has observed three cases of blastomycosis which have followed trauma at work.

Bakers sometimes suffer from a dermatitis. Mummery[84] succeeded in isolating a fungus in such cases and suggested that it was the cause of the disease. Starobinski[138] reported the case of a baker who was troubled for three years with clear vesicles breaking out under the wrists and on the skin of the fingers; cracks, itching, and desquamation of epithelium followed. He isolated mycelial filaments from the vesicles but could not identify the fungus. It is not clear in these cases whether the fungus was the primary cause, or the secondary invader.

Unidentified fungi commonly cause eczematous conditions of the hands of workmen who are exposed to low-grade irritants. A typical case is reported in a late issue of the Journal of the American Medical Association[117], in which an eczematous involvement of the dorsum of the hands of a painter who had been using kalsomine for 30 years is described.

Treatment is often unsatisfactory. Wet dressings of aluminum acetate, in acute stages, and x-rays are usually tried. Myers[85] has treated with a dilute alcoholic solution of cinnamon oil infections on the hands of employees of fruit canneries in the Pacific Northwest, due to a "yeast-like" organism. Painted on the lesion it produced almost immediate relief and rapid healing. Experimentally it was found that thymol, carvacrol, and the volatile oils of mustard, cinnamon, and clove are the only members of the large group of more commonly used volatile oils which have marked fungicidal powers.

An additional fungous infection was studied by Russ[126]. A small group of workers who packed and sorted various kinds of dried fruits showed a dermatitis invariably situated only on the palmar surface of the forearms. The lesions were at first erythematous, papular on the fourth day, vesicular on the sixth, and pustular on the eighth. A typical cercosporalla was obtained after fourteen days' culture. It reproduced the lesion on inoculation.

Animal Kingdom

Thompson[142] has discussed the entire mite family with respect to occupational disease, including demodex, the food mites (cheese mite, flour mite, sugar mite, dried-fruit mite), harvest mites, red spiders which infest loads of guano, the fowl mite and the rat mite.

O'Donovan has noted dermatitis due to Carpoglyphus pasularum[90,91]. The rash appeared on the forearms, backs, hands, and faces of men engaged in shovelling dried figs. The eruption consisted of discrete, closely set, apparently follicular papules, pale pink in color with red scabbed tops. The lesions were suggestive of scabies but were too small, and there was no burrowing. On examination the parasite was discovered and identified. Similar cases occurring in men engaged in unloading sacks of peas from Morocco were reported by Hudelo and Dumet[61]. However, in this case, Pediculoides ventricosus was isolated.

The same mite, Pediculoides ventricosus, is the usual cause of grain itch[112] (alias "threshers' itch", "Ohio scratches", "prairie itch", "Texas mange", and "straw itch"). The parasite, the lesions produced, and the method of control are fully described by Schamberg and Goldberger in Public Health Report No. 28, 1909. Burrowing does not take place, as with the common mite. Itching, followed by urticarial lesions, appears. This ointment is recommended:

Sublimated sulphur	12	parts
Betanaphthol	2	"
Benzoinated Lard		
Petroleum aa q. s.	120	"

CHEMICAL AGENTS

In this industrial age many of the important causative agents of dermatoses are substances the chemical formula or composition of which are well known. Most of them are definite compounds, but a few are mixtures of many constituents, the principal ones of which are known. The group, somewhat heterogeneous, may be divided most simply into the following subdivisions:

(1) Inorganic compounds—acids, bases and salts.
(2) Hydrocarbons and crude coal tar products—oils, tar, pitch, turpentine.
(3) Other organic compounds—organic acids, dyes, and other compounds of carbon.

Inorganic Compounds

These include: (a) acids, (b) bases, (c) non-metals, (d) metals and their salts.

(a) Acids. Used almost universally in all types of manufacture, acids are the cause of numerous skin lesions, because of carelessness or accident. Hydrochloric, nitric, and sulphuric acids are the most important. They produce either burns or, in larger amounts, ulcers. Those due to nitric acid may be identified by their yellow color; sulphuric and hydrochloric acids cause a red to brown. It is said that acid burns are more circumscribed than those due to alkalies. Rarely, the ulceration may transform into a squamous cell carcinoma, as happened in Mishell's[82] case.

(b) Bases. Alkalies and the metallic oxides injure the skin in several ways. In weak solution, or in the case of mild alkalies, they emulsify the skin lipoids and render the skin less resistant to the attacks of other substances. The strong alkalies, including lye, potash, and lime, dry the skin and act as keratin solvents as well. Thus the finger nails become cracked when the hand is dipped often in such solutions.

Such lesions appear in plasterers, cement-makers, bricklayers, masons, stonecutters, brick-makers, modellers, and in some metal platers.

One of the most common manifestations is the cement-workers' dermatitis[118,92]. A rash appears on that part of the body exposed to cement dust or on the feet, if the worker wades in soft cement in leaky shoes. A chronic lesion is the more common type. The skin may ooze at first but usually is covered with crusts and papules, or desquamates. The finger-nails become thin, fragile, and cracked longitudinally.

Buadouin[15] has reported cases in modellers who use cement. The workers had numerous small ulcers along the borders of the fingers.

In various industries lime and cyanide pastes are used as a cleaning agent or in the process of plating. Cyanide is a skin irritant itself but its action is enhanced by the presence of lime. Eczema first appears, followed by intractable ulcers (see below under cyanide burns).

Zinc oxide workers often suffer from exposure to the fine dust present in plants which prepare it. Investigation shows this metallic oxide to be entirely non-toxic, but that it blocks the ducts of the sebaceous glands, leading to the retention of pyogenic bacteria with consequent pulsation.

The eruption is at first papular—red with a white central core of zinc oxide. In two or three days the papules slowly subside or develop into pustules. There is intense itching. The eruption persists about a week. It then slowly dries up and is succeeded by exfoliation of the epidermis. Usually the pubic regions, scrotum, and inner surfaces of the thigh are affected, although the axillae and inner surfaces of the arms are not uncommonly affected. The disease is most common in the summer months.

Turner[146] has said that daily baths are an efficient preventive, but tightly-woven clothes, fitting closely at neck, wrists, and ankles and frequently cleaned are recommended.

(c) Non-metals. Arsenic is the important member of this group[73,6,93]. It belongs with the oils and tars as a keratogenic and neoplastic agent and is therefore of great importance. The lesions may appear in those engaged in manufacturing or using white arsenic, arsenious oxide (used in calico printing as a reducing agent), insecticides such as emerald green and Paris green, and sheep dips. Arsenic is also employed

as a decolorizing agent in glassmaking and as a corpse-preservative.

The lesions of the skin appear especially in the region of the genitals and in the axillary folds. The fine dust lodges here and produces in succession erythema, papulation, vesiculation, and pustulation. Hyperkeratinization and carcinoma may follow. Pigmentation often appears in chronic cases. Employed in solutions arsenic is less harmful. In its mildest form there are hyperidrosis, loss of hair on exposed parts, and a scaly skin.

The possibility of arsenic poisoning must also be kept in mind in those workers engaged in smelting copper, iron, silver, tin, nickel and lead, which contain it as an impurity.

Chlorine may produce a dermatitis. It is used as a bleaching agent in the pulp and paper industry. A skin eruption is associated with its use, but whether it is due to the chlorine or to the tarry body is not clear[106].

(d) Metals and their salts. The compounds considered here include those of cobalt, chromium, magnesium, nickel, potassium, sodium and zinc.

(1) Cobalt. According to White, cobalt ore washers often exhibit a general hyperkeratosis of the skin, especially over the metacarpo-phalangeal joint and superficial ulcerations in the same location. Cobalt dermatitis has been reported in gilders[3] (1927).

(2) Chromium. As chromic acid, or as a bichromate, this is a strong oxidizing agent and frequent causative agent of skin lesions[78]. It is noted most often in the chromium-plating, chrome tanning, and lithographing industries, but is also observed in makers of chrome dyes and painters and dyers. Recently it has been recorded as the cause of a dermatitis in sensitive blue-print workers.

The chronic chrome dermatoses, according to White, are: (1) the subcuticular vesicle; (2) the chrome sore—an indolent, deep, painless, ulcer; (3) the granuloma; and (4) the scar.

A report of the U. S. Public Health Service[147] concludes that "exposure to very low concentrations of chromic acid, e.g., one milligram in 10 cubic meters of air (which may be considered approximately the volume of air breathed by a worker in eight hours), is sufficient to cause nosebleed and nasal inflammation in a week or less. Higher concentration or longer exposures cause extensive attack and even perforation of the nasal septum. This is painless, however, and the operator may be entirely unaware of the perforation. Many of the employees were found to have chromium ulcers on the hands or other exposed parts of the body. No evidence was found of injury to the respiratory tract except in the nose, nor of any effect on the digestive system or the kidney.

"While, therefore, there is a real hazard in chromium plating, it is not critical, and can be eliminated by suitable measures. These should include an effective system of ventilation in which the air is drawn horizontally across the plating tanks into a narrow duct, in which the air velocity should be about 2000 feet per minute. So far as possible, rubber gloves, aprons, and shoes should be worn. Frequent applications of vaseline or mentholatum salve to the nose and hands greatly reduce the danger of ulceration."

Parkhurst[104] has described the manner of employment of chromium salts in lithography and concluded that chromic acid, potassium bichromate, and ammonium bichromate in solutions may readily produce skin irritation without the necessity of any previous injury.

With respect to treatment, Collis recommends that the following mixture be rubbed on the hands before working:

Mineral lard	3 lb.
Paraffin, molle	6 oz.
Cyllin	3 oz.

(3) Magnesium. Dolomite, an ore containing magnesium and calcium, has been suggested by Hollander[58] as a cause of a dermatitis. His patient, a factory worker, showed indurated lesions, consisting of papules and fissures located on the forehead, neck, both feet and the anterior surface of the thighs. There was intense itching.

(4) Nickel. The industry of nickel-plating leads to many cases of dermatitis since many chemical agents injurious to the skin are employed. In preparing the metal, benzene is often used as a cleanser. Then nickel ammonium sulphate is applied, usually after the metal is dipped in hot potash and cyanide bath. The nickel salt is at times applied in a strong solution of sulphuric acid. In other cases a pure salt solution is used.

If the rash is due to acid it may be simply told by applying litmus to the lesion. Kolzoff[68] has analyzed a series of 56 cases in which the nickel salt was the cause of the eczema. Girad and Thévenard[46] reported a case of nickel itch due to sulphuric acid.

Bulmer[17] examined a series of cases and found two types of rashes among the nickel refiners. Those exposed to a moist atmosphere developed erythema of the exposed portions with marked pruritus. Unless treated early it progressed to the second type—papules more widely distributed. He found the cure could be hastened by the oral administration of calcium chloride. Ventilation and suitable cooling apparatus are of value in prevention.

It is recommended that workers rub a small amount of lanolin on their arms before going

to work; this is a very efficient preventive. For treatment of the rash, the following may be used:

Sodium bicarbonate	4 oz.
Potassium chlorate	2 oz.
Sodium borate	2 oz.

Sig.: Dissolve a tablespoonful in about 2 quarts of warm water and bathe the affected parts, bathing for about 15 minutes, keeping the solution as warm as can be endured. Do not rub. Then immediately rub in the following ointment, which gives almost immediate relief:

Lanolin	4 oz.
Olive oil	1 oz.
Thymol iodide	1 dm.
Starch	q. s.

(5) Potassium. Potassium persulphate has been shown by Tankard[140] to be one of the causes of bakers' eczema. This is added as an improver of some flours. When moistened, irritant potassium sulphate is released. The irritation is due to the sulphate ion rather than potassium. In this case the lesion consisted of eczema extending to the elbows of both arms.

There is, however, probably no specific cause of bakers' eczema[161,165]. It has followed the use of flours which do not contain improver. An investigation made by Parsons[102] indicated that most cases arise from lack of cleanliness accentuated by dough sticking to the skin.

(6) Sodium. Sodium chloride has been shown to cause other cases of bakers' eczema. According to de Jong[30], when a solution of about 3.5% sodium chloride was added to flour it crystallized on the arms of the workers. Kneading the dough rubbed it in and a dermatitis resulted. As a preventive the use of a spray of fresh water after mixing the salt solution and at periods during kneading was advised.

Common salt has also caused a dermatitis in those engaged in handling fish.

Sodium arsenate is a constituent of many sheep dips. Those handling it, as well as those who are engaged in tanning industries which use sodium arsenate, often show the skin rashes characteristic of arsenic[3] (1923).

(7) Zinc. Zinc chloride in clothing and in sizing mixtures has produced a mild dermatitis. McCord and Kilker[80] have described a series of cases which occurred in workers who were using zinc chloride in a wood preserving industry. The dermatitis consisted of small openings in the skin on the fingers, hands, forearms, and rarely of the legs. Beneath the opening was found an escharotic core; around it the tissue was devitalized. The lesions were either painless or very painful.

Preventive measures include the use of overalls and flexible lineolated canvas gauntlets. Prompt treatment should be given all lesions. This includes the removal of the core, and filling the space with sodium bicarbonate alone or in combination with petrolatum.

Hydrocarbons and Crude Coal Tar Products

This group, although not sharply limited, is well known and includes the most common causative agents of industrial dermatoses. From crude petroleum are obtained various oils and more volatile hydrocarbons such as kerosene and gasoline, aliphatic compounds, and benzene and naphthenes, aromatic compounds. Also on distillation two solid products, vaseline and paraffin, are obtained, while a residue of tar is left.

In the same way coal may be subjected to destructive distillation; benzene hydrocarbons, oils, and a residue known as coal tar or pitch are recovered.

Closely related to these compounds is turpentine, which consists of unsaturated cyclic hydrocarbons.

All of these compounds produce irritation of the skin, but the non-volatile are the most dangerous. The lesions are extremely variable. They may be described as follows[12];

(1) Superficial inflammation — erythema, vesicles, and pustules, progressing to folliculitis. Itching is common.

(2) Follicular keratitis. (Differential diagnosis pityriasis rubra pilaris, psoriasis, Darier's disease.)

(3) Melanoderma of exposed skin surfaces. (Differential diagnosis — Addison's disease, arsenic melanosis, pigmentation after lichen ruber planus). Arnstein[5] reported melanosis of the exposed skin of workers in an electric flashlight factory who spread layers of tar between the battery elements. Tar vapors were in the air. Freund[41] observed a workman who had been exposed to tar fumes for several months. His face, neck, abdomen and forearms were slate brown, lichenoid in appearance.

(4) Circumscribed warty areas. (Differential diagnosis lupus erythematosus.)

(5) Ulceration and carcinoma. For example, O'Donovan[95] has described multiple skin cancers in a gunsmith who had cleaned guns for 39 years with paraffin oil.

(6) Atypical lesions. Macular exfoliative dermatitis occurs rarely in oil station employees[164].

The more volatile hydrocarbons are apt to produce the first type of lesions, while the others are produced by the non-volatile.

The British researches and regulations about the pitch and coal-agglomerates industry are summarized by Gilbert[45]. According to this author, coal dust, naphthalene, creoline, and aniline dyes produce no skin lesions; certain kinds of pitch also are innocuous.

The only processes of the industrial preparation of pitch which produce skin irritation, according to Herman[54], are the crushing and

grinding of the pitch. The dust apparently is responsible. Prophylaxis requires preventing pitch dust from reaching the workers. This may be realized either by masks and special garments, or by carrying out the crushing and grinding in special closed machinery.

Heestermann[53] experimentally attempted to determine the exact causes of the lesions produced by machine oils. He concluded they were neither alkaline nor acid, nor unsaturated compounds, nor asphalts, but belong to the more volatile portions of the oil. The irritants can be removed by sodium hydroxide and sulphuric acid. They can be detoxified by large amounts of sulphuric acid.

It has recently been shown by the Manchester Committee on Cancer[76] that the natural petroleum oils have a carcinogenic activity almost as high as whale oil. They can be detoxified by large amounts of sulphuric acid. Application of lanolin between exposures delayed the development of cancer.

Protection of the hands against the de-oiling action of naphtha and gasoline in the dry cleaning industry, where oily applications cannot be used for fear that the garments being cleaned may come in contact with these oily substances, may be secured in the following manner[119]: There should be thorough cleansing of the hands and arms at the end of the work period with soap that lathers freely. Immediately afterward hydrous wool fat or oil of theobroma should be rubbed into the skin of the hands and forearms thoroughly. The application of oily material should be repeated in the morning, and once or twice during the day, as the circumstances of work warrant. At the first indication of the dermatitis, the worker should be taken away from exposure to the irritants, and should be treated with a weak solution of aluminum acetate. If the condition is severe, the use of aluminum acetate for three or four days should be followed with application of zinc oxide, 10%, in olive oil.

The application of bland fatty materials is recommended for folliculitis resulting from exposure to cutting oils. Filtration of oils to remove mechanical irritants and frequent oil changes, and careful personal cleanliness are also important.

Kennaway[65] cured several cases of dermatitis due to turpentine and naphtha by a solution of 1:1000 potassium permanganate.

Eisner[36] observed a series of cases of dermatitis produced by naphthalene lubricating oil. The moist lesions were found on the hands, forearms, neck, face, abdomen, and thighs. He treated the mild cases with a bland salve, and the stubborn with x-ray.

The occupational dermatoses of the paraffin workers of the Scottish whale oil industry have been described by Scott[133]. Typical lesions were shown by half the workers. They are produced by superficial inflammation following mechanical plugging of the sebaceous ducts with semi-solid paraffin. The hairs may be destroyed by the folliculitis. The smallest lesion is a small pea-sized papule. Each one either necroses leaving a scar, or becomes hard and warty. These hyperkeratotic areas may later develop into carcinoma. There is another type of dermatitis which begins as a generalized erythema and gradually deepens to a dry, scaly pigmentation. Personal cleanliness is emphasized in prevention.

McCloud[77] reported two outbreaks of dermatitis in industries employing distilled wood turpentine. He referred to the non-specific nature of the rash, which resembled that produced by benzene. He believed that freedom from the hazard will not be obtained until careful fractionization is provided to free the nearly harmless terpenes from the many severe irritants in the crude product.

Perutz[107] has analyzed the pathogenesis of turpentine dermatitis. He concluded that the acute form is allergic in type, but that the chronic form has none of the characteristics of an allergic reaction.

According to foreign observations, ink poisoning, which produces rashes on the hands and forearms of printers, is due to adulterants of oil of turpentine. The U. S. Public Health Service[148] concluded, after a series of experiments, that the oils were of no importance but that the mechanical removal of the inks by brush was responsible for the initiation of the dermatitis. Healing is retarded by the inks. The lesions vary from a slight erythema to ulceration, from dry and scaly to vesicular, discrete or coalescing. Itching is always present.

To prevent the dermatitis a mixture of equal parts of lanolin and olive oil should be rubbed into the skin before beginning work. At luncheon time and again at the end of the afternoon's work the oil should be removed by a mixture of sawdust moistened with liquid soap and warm water.

A treatment which produced remarkable results is the application of the following mixture as soon as the dermatitis appears:

Zinc ore (calamine and zinc silicate) pulverized and passed through a 100-mesh sieve	3 parts
Gelatin	4 "
Glycerine	5 "
Water	6½ "

The mixture is made into a solid block. The directions:

(1) Melt the solid block in the inner pan of a double saucepan, the outer pan of which is filled with water and heated on a fire or gas-stove.

(2) When completely melted, stir with a stiff-bristled, common paint brush. If the paint is too stiff, as it frequently is, add a little hot water until the proper consistency is obtained. This should be about that of a thick sauce or sticking paste. If too much water should be added in doing this, the

excess can soon be eliminated by prolonged heating, or by adding more of the solid block.

(3) Paint over the part afflicted with a single layer of paint, and before it has set, tap lightly all over with a piece of absorbent wool, so as to form a kind of feltwork with the paint.

(4) Allow it to set completely before putting any clothes over it.

(5) Leave it on until it begins to come loose; then peel off and apply more in the same manner.

Closely related to these oils are the non-saturated mineral oils found in linseed oil. Dermatitis is very common among workers in linseed oil mills. The lesions are found on the parts exposed to the oils—usually the anterior aspect of the arms, dorsum of the hands, and anterior aspects of the thighs. They are symmetrical, discrete, deep, and thickly scattered. They consist of primary macules and papules with secondary scratch marks and crust formation. There is intolerable itching especially at night or after bathing. Vokoun[150] has described a series of cases.

Other Organic Compounds

This group comprises those organic compounds which were not mentioned in the previous section. They may be divided into (a) aliphatic, or straight-chain carbon compounds, and (b) aromatic, or cyclic compounds.

The aliphatic compounds which have been noted in recent literature are as follows:

(1) Carbon, i.e., lamp-black, soot.
(2) Carbides, cyanamides, cyanides.
(3) Aldehydes; formaldehyde.
(4) Ketones; acetone.
(5) Alcohols: methanol, glycerol.
(6) Acids: acetic, citric, stearic, oleic.
(7) Carbohydrates: sugar, flour.

(1) Carbon. Soot is a carcinogenic agent just as the heavy oils and pitch. It occasionally causes the chimney-sweeper's cancer of the scrotum. Hauff[51] reported a case in which a fireman, exposed for a prolonged time to smoke, developed a cancer in a spot from which a sarcoma had previously been resected. He believed this was a soot cancer developing in a predisposed area.

(2) Carbides, cyanamides, cyanides. Carbide used in making acetylene produces a dermatitis followed by numerous punched-out sores similar to that caused by lime, according to Sachs[128].

Calcium cyanamide has become a common constituent of agricultural fertilizers. Both the manufacturers and the farmers using it are liable to develop severe toxic symptoms besides an erythema of the skin followed by urticaria, eczematoid and bullous dermatitis[21, 101, 105]. Casazza has described two cases of extensive sphaceloderma from exposure. The mucous membranes of the nose and throat are affected as well, while the skin on the forearms presents the most severe lesions. Schlier[131] observed a case of periostitis of the hand in a farmer who had been using the cyanamide.

The constitutional effect, according to Hesse[55], consists of dyspnea, rapid pulse, and collapse. The attack lasts only a few hours and leaves no traces. It develops only when alcohol is taken.

Cyanides are used especially by engravers, watch makers, brass polishers and jewelers[59]. They are found in many silver and gold polishes. They are skin irritants. The eruption is found on the hands and lower arms. It is very persistent. After repeated minor ulcerations, intractable ulcers may be produced, and carcinoma may follow if irritation is continued. Symptoms from cyanide poisoning are, besides the dermatitis which occurs in the susceptible, a sweet taste in the mouth, conjunctivitis, and headache.

In the early stages, 10% zinc oxide in olive oil should be applied, while if there is ulceration dyes such as scarlet red may be used. Change of occupation is often required[121].

(3) Aldehydes. O'Donovan[90] stated that a solution of formalin and glycerin used by girls employed in coating paper has produced a dermatitis.

(4) Ketones. Acetone is a defatting substance, so long-continued exposure should lead to a dermatitis. However, no definite cases have been reported.

(5) Alcohols. Dermatitis attributed to alcohols generally is due to the substance for which the alcohol is a solvent (e.g., Ref. 90), or else to impurities in the alcohol (See below, under pyridine).

(6) Acids. The fatty acids are definite irritants of the skin. Dermatitis caused by acetic acid in cleaners and hat makers was described by Carozzi[20].

Foa[38] noted eczema of the hands in children and young women employed in factories canning tomatoes. He attributed it to citric acid and succeeded in preventing it by having the workmen rinse their hands from time to time in a 1% solution of hydroxide, and then in water.

Oleic acid is a constituent of a mixture "Dermax" painted on stencil sheets. Hailey[48] stated that stenographers have developed a dermatitis after using it.

Lead stearate is used in the rubber industry to soften the rubber. Cronin[24] has reported a series of cases of dermatitis resulting from its use. The characteristic of the lesion was a black deposit of lead stearate on the exposed parts of the hands, arms, and face. There was slight itching, followed by dryness of the skin and desquamation. Probably both the lead and stearic acid contributed, but as none of the constitutional symptoms of lead poisoning appeared, the latter was probably the more important cause.

The dermatitis yielded readily to a protective ointment and bandaging.

(7) Carbohydrates. Sugar refiners and confectioners are subject to various forms of dermatitis, which vary from a slight rash on the backs of the hands and face to widely distributed crops of boils. The exact cause is uncertain but it seems that the sugar or some impurity in it is involved[10].

The macerated stalks of sugar cane form a black dust which, on contact with the skin, will produce dermatitis of the face, backs of the hands, and the scrotum[167].

In the sizing of Axminster rugs, British gum is used, which is a dextrin. Severe dermatoses occur in this industry, and it is probable that the gum is the causative agent. Tapioca flour is used in the same mixture, but there is no authority for considering it to be the offending substance.

Dermatoses due to impurities in flour are fairly common (see reference to bakers' eczema, under potassium compounds), but flour *per se* does not appear to be a skin irritant.

Aromatic Compounds. This group includes those compounds which contain one or more closed carbon or carbon and nitrogen chains, e.g., derivatives of benzene, naphthalene, pyridine. Those to be discussed are as follows:

(1) Simple derivatives of the benzene series: benzol, aniline, dinitrochlorbenzol, picrates, TNT, dyes.
(2) Derivatives of the naphthalene series: naphthalene, chlornaphthalene.
(3) Cyclic compounds: pyridine, quinine.
(4) Condensation products: bakelite, metol, phenylene diamine, butescin, butyn, procaine.

(1) Simple derivatives of the benzene series. Benzene itself causes dermatitis, especially of the interdigital surfaces of hands which are immersed in it. It is sometimes combined with aniline as a solvent, but the aniline is incapable of causing a dermatitis. Benzene is used chiefly as a cleaning agent or a solvent; among other industries it is used in the rubber manufacturing and nickel plating trades.

The health hazards of the rubber industry are discussed by Quinby[127]. He listed litharge (which turns the skin yellow), aniline (which produces a dark blue skin), and benzol, antimony, hexamethylenetetramine, paraphenylenediamine. Another compound used in this industry which causes dermatitis, according to Cleveland[22] is hexanitrodiphenylamine.

There are, however, other dermatoses encountered, the causes of which are not clear (Haupt[52]). Workers in tire factories who dip the fabric into the rubber solution suffer from cracks on the inside of the hand, and eruptions on the hands, forearms, face, and upper part of body. Rubber gloves were not effective in preventing it.

Hexamethylenetetramine is often used in the rubber industry as an accelerator. It is a powder, readily conveyed through the air. It produces a dermatitis on the sweat-soaked face and beneath dusty clothing. Until recently it was thought the "hex" broke down into irritant formic acid which produced the dermatitis. Work by Burrage[18] indicated that it is due to the powder itself, and that the rash is of the nature of an anaphylactoid phenomenon.

Cronin[25] has observed 60 cases of "hex" poisoning. He noted erythema of the exposed parts of the arm, dorsum of the hands, and between the fingers. It was followed by fine vesicles and later by edema. There was severe itching. Later, indolent deep infections appeared. Treatment was unsatisfactory. The milder cases responded to a wash of sodium bicarbonate and glycerine. More severe manifestations were treated with a coal-tar zinc oxide ointment. However, it was found necessary to desist from the use of the "hex" to prevent the dermatitis.

Rubber ear-phones have produced acute eczema of the auricles, in combination with the perspiration and mechanical irritation of the skin, according to Oelze[96] and Marcus[81].

Dinitrochlorbenzol is found in some impure samples of nitric acid. Wittenson[163] has reported several cases of dermatitis due to it in workers employed in a glazed earthenware factory where the nitric acid was used as an ingredient of the glaze, and in workers in zincography who used the nitric acid for etching zinc places. The dermatitis, associated with pruritus was localized chiefly on the dorsal surface of the hand and the lower part of the forearm.

The picrates, used as explosives and dyes, are dangerous chiefly because of their constitutional effects, but picric acid, if dried until it contains less than 1% of water, will produce dermatitis, accompanied by severe itching.

The manufacturers of synthetic dyes are exposed to many noxious chemicals. The types of dermatitis which appear are discussed fully by White. The dyes themselves are dangerous; cf., dinitrochlorbenzol above, phenylenediamine below. Paranitraniline produces very distressing dermatoses. Phenolphthalein, taken by mouth over a period of time, will produce skin lesions.

Oliver[97] has reported several cases of rotogravure ink dermatitis. It appeared as acute inflammation of the skin of the face and neck of readers of this section of the Sunday papers. It was worst on Monday and Tuesday. It was reproduced by fastening a small piece of the paper to the skin. He concluded that the dry color of the ink, para red, was undoubtedly the irritating agent. Para-red is synthesized from paranitraniline and beta-naphthol.

(2) Derivatives of the naphthalene series. Naphthalene rarely causes a dermatitis. Patzsche[103] reported a case in which a young woman developed a toxic dermatitis after working on and wearing furs which had been treated with naphthalene. It was followed by anhidrosis, which was finally remedied by small doses of pilocarpine and irradiation.

Manufacturers of chlorine by electrolysis from sodium chloride sometimes develop a form of acne which appears to be due to chlorinated naphthalene formed during the process, according to Pillon and Nicolas[87].

(3) Cyclic compounds. Pyridine has been used as a denaturant of methyl alcohol. Applied to the skin it caused dermatitis in surgeons and barbers of Manchester, according to Mumford[83].

Quinine manufacturers often develop an itching, erythematous eruption involving the face, neck, antecubital spaces, genitalia and upper parts of the thigh, associated with some edema and slight vesiculation. Whether it is due to the ingested quinine[32] or due to a direct irritant action of the drug on the skin is uncertain. Blamoutier[13] believes the latter view is correct.

(4) Condensation products. Workers who make bakelite by the condensation have developed a dermatitis, as described by Sachs[128].

Phenylenediamine is a dye which has been used frequently to dye furs. Wearers of these furs have then developed a dermatitis affecting especially the parts touched by the fur, i.e., lower face and neck[141,75]. The same dye is used in cheap stockings and in some hair dyes as well as in the rubber industry as an accelerator. Experimental work on the production of dermatitis by dyes of this series has been done by Hanzlik[50] and White[160]. The eruption may be erythematous, lichenoid or eczematous.

The group of local anesthetics—butesin[111], butyn, and procaine—are capable of causing dermatitis. Dentists suffer especially from procaine, as reported by Lane[72]. But procaine is not concerned in the etiology of some of their dermatoses, according to Gaskill[44], who excluded it by tests. For such irritation he recommends an ointment containing 25% hydrous wool fat and 75% petrolatum to which, after heating, 2% of phenol is added.

Greenwood[47] has reported a case of a doctor who was sensitive to both procaine and butyn. Following two years of work with butyn he suddenly became sensitized to it. His entire body was soon covered with a vesicular-papular eruption, becoming pustular. There was much itching. The most satisfactory lotion was composed of:

Zinc oxide	8 gm.
Calamine	4 gm.
Phenol	2 gm.
Glycerin	4 cc.
Aqua q. s. ad	250 cc.

Photographers, especially those engaged in developing, are exposed to many industrial poisons, such as bromide, chromium, metol, cyanogen, platinum, vanadium, aniline, and mercurial compounds. Metol (mono-methyl-p-amido-meta-cresol sulphate) is the most common cause of photographer's eczema[122]. It is characterized by an erythematous rash of the hands and arms, followed at times by ulcers. A useful dusting powder is zinc stearate to which 1 to 2% of phenol or salicylic acid has been added. This ointment has been advised:

Sulphonated bitumen	
Resorcinol	
Glycerin	aa 1 oz.
Zinc oxide	½ oz.
White petrolatum	6 oz.

Dermatitis attributable to leather substitutes used in caps has been reported by Schemel[130], to match boxes by Frei[10], and oil cloth by Dreyer[33].

Other cases of industrial dermatitis will be observed in which the cause will remain in doubt. Treatment must then necessarily be non-specific. If the eruption is red, dry and scaling, O'Donovan[88] recommended application of the following:

Calamine	35 grs.
Solution of lime	½ oz.
Olive oil q. s. ad	1 oz.

Sig.: Gently wipe on with cotton-wool t. i. d. and allow to dry without external dressing.

If the eczema is moist and exuding serum, this solution should be applied until the weeping ceases[112]:

Sol. alu. acet.	30 cc.
Boric acid	15 gm.
Water q. s. ad	500 cc.

Then apply a bland ointment such as this:

Sulphonated bitumen	gtts. 5
Zinc oxide	
Calamine aa	4 gm.
Ointment of rose water q. s.	30 gm.

Methods of desensitization have been successful in certain cases. Parenteral methods of milk injections succeeded in a series of 14 cases recently reported[16]. Specific external desensitization is improbable. These methods have not been widely employed and should furnish stimulus for investigation.

CONCLUSION

Every new industry produces additional industrial dangers to human health for new chemicals constantly yield new hazards. The toxicology and therapy of these chemicals must be studied by any physician who wishes to treat the conditions arising from these complex chemical intoxicants intelligently. The skin, as has been shown, is frequently attacked. The causative factor is not always clear, for often many substances are handled in the day's work, so that consultation with the plant chemist is of great

value. It is essential to industry to maintain the workman in such a state of physical and mental well-being that he can perform his work with profit, both to himself and to his employer. It is essential that medicine protect the workman so that the profit be made without injury to himself or his co-workers. Regarding the prevention of industrial dermatoses, knowledge of the pharmacology of the various chemicals, frequent inspection of the employees, with immediate removal from an irritant at the first sign of irritation, and attention to the hygienic conditions both of the place of employment and of the employee, will greatly reduce the incidence of industrial dermatoses.

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NOTES ON ALEXANDER RAMSAY AND HIS ANATOMIC MANUSCRIPTS*

BY JAMES F. BALLARD†

IN 1927, the Boston Medical Library, with the assistance of Dr. James A. Spalding of Portland, Maine, and through the generosity of Drs. Frederick C. Shattuck and John Warren, became the owner of a unique collection of original anatomic drawings by Dr. Alexander Ramsay.

Alexander Ramsay was born about 1754 and died in 1824 at the age of about 70 years. His three biographers did not know anything of his family or his early life. Dr. S. P. Bradley in 1883 delivered an address before the Maine Medical Association on the life and work of Dr. Ramsay, based on manuscripts and documents which were then in the possession of Dr. Bradley. It is supposed that he was born in London, came of a good family and one of considerable means.

He received an excellent academic education at either Trinity College, Dublin or Aberdeen University in Scotland.

He devoted himself at an early age to the study of the sciences, especially anatomy, "To convince himself how far a knowledge of animal structure and intellectual principles corroborated our interest in religion as mortal, mutable animals, and immortal, immutable beings." (Address in Fryeburg, 1818.) (Bradley.)

As early as 1790, he had made up his mind to emigrate to America and wished to qualify himself for "retirement" as he called it. In pursuance of this plan, he studied at London under George Cruikshank and Matthew Baillie in the Hunterian School and under the Monroes at Edinburgh.

Finding it impossible to continue his anatomic studies beyond a certain point, he established an anatomic museum and school of his own, and in that way, he finally compelled the medical faculty to add an anatomic school to the University. Having thus forced upon the University of Edinburgh his improvements in anatomic teaching, he willingly carried out his long-projected retirement to America.

He sold all his property in Edinburgh in 1801 and 1802 and as an epidemic of Yellow Fever appeared in New York in 1802, he set sail and first landed in Boston where he lectured, then proceeded to New York and finally betook himself to the small town of Fryeburg, where he hoped to found his anatomic school, which he later repeatedly tried to establish in New York, in Boston, in New Hampshire and in some southern cities.

Ramsay was a born wanderer and could not stay long in any one place.

His first stay in Fryeburg was short, as Yellow Fever for the second time broke out in New York in July, 1803. He immediately "posted" for that city via Boston. He soon returned to Fryeburg and was next heard of in 1805 in Edinburgh where he received an Honorary Degree from the University of St. Andrews. He was back in Fryeburg in 1806 and lectured in New York in 1807. In 1808, he was engaged by Nathan Smith to give his anatomic lectures at Dartmouth College. In 1810, he was in London and remained travelling about England, lecturing and begging money for his school at Fryeburg until 1816. He returned to America, lectured in New York in 1816, in the south at Savannah and Charleston during 1817. From that year until his death in 1824, he was incessantly at work, mostly in New England. In 1821 he made a tour of Canadian cities.

His aim in life was to establish in America an anatomic museum and school of which the Nation would be proud. In this he failed; although he instituted his school in Fryeburg early in 1818. At that time, he valued his anatomic collection at $5,000 and had an extensive library of books on anatomy, physiology, surgery, medicine, chemistry and the foundation of a philosophical collection.

The school of Fryeburg did not last long. In 1820, we find Ramsay installed in his museum and school in Conway, N. H. In 1822, he returned to Fryeburg seeking to found some kind of a medical institution.

He died at the home of his friend, Dr. Sweat in Parsonsfield, Maine, in November 1824, of "lung fever".

After his death, his famous collection of specimens and his library, which were valued by him at $14,000, were most unfortunately dispersed.

Ramsay was a genius but, like all such persons, he was too eccentric for ordinary humanity to understand and endure. His temper was so irascible and his vanity so great that he could not coöperate long with his equals. One after another, he quarreled with them. He met with much opposition and nearly all stood aloof because his ideas of practice were opposed to those which were current in his day.

He was not only proud but vain, for he did not forget himself for a single moment. He considered himself a perfect specimen of humanity, while, in fact, he was a singular example of deformity. His height did not exceed five feet. With a crooked back, short neck, large head,

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limbs clumsy and misshapen, the whole man seemed to be thrown together by nature in a fit or whim of negligence.

He was a fine anatomist and lecturer and a wonderful dissector, and, at one time remarked "that he acknowledged only two superiors as anatomists—God Almighty and John Hunter". He practiced medicine and surgery and was famous for his treatment of fever. His eloquence was so compelling that his students and others were enchanted by his lectures.

It was in Fryeburg that he conceived and planned in part, his work on anatomy, of which the volume on the heart and brain forms a portion. While in Edinburgh in 1812 and 1813, he brought out the first part of his projected work on anatomy under the title "Anatomy of the Heart, Cranium and Brain," Edinburgh, 1812. Second edition, enlarged—Edinburgh 1813. He had planned to bring out the other five fasciculi in England as set forth in his prospectus, but evidently could not find a publisher and until his death, he was constantly endeavoring to get his work issued in some form or other. Dr. Bradley in 1883 states that the drawings for these remaining five parts had disappeared and had never been satisfactorily accounted for.

Dr. Ramsay early learned to draw and thus was able to make his own drawings for his projected work on anatomy. He also engraved his own plates for his work on the "Heart, Cranium and Brain," and they were printed by R. Scott using the aquatint process.

His letterheads were surmounted by an elaborate etching with the sun above, the rays striking between the heart and the brain, over which is the motto "To thy years there shall be no end" and below "They die and return to the dust." At the bottom are three cherubim, one flying with the words "stimuli, latent organization and phenomena," one standing in supplication and one kneeling before a skull and hourglass, weeping. In the lower left corner is a delicate picture of Edinburgh Castle. In the lower right corner is the reference Job xix, 26. The artist was J. Bowen, Esq.

The prospectus for Ramsay's work calls for five fasciculi in addition to the one of the "Heart, Cranium and Brain" published in Edinburgh in 1812 and 1813.

The Boston Medical Library has the drawings for these parts, all assembled and numbered by Dr. Ramsay. It also has a sixth part and what might be called a seventh experimental part.

A list of the parts is as follows:

1. Trunk—18½ x 12 in Anterior View. 5 plates.
2. Trunk—18½ x 12 in Posterior View. 7 plates.
3. Inferior Extremity—16 x 12½ in Anterior and posterior views. 5 plates.
4. Superior Extremity—16 x 12½ Posterior View. 4 plates.
5. Superior Extremity—16 x 12½ Anterior View. 7 plates.
6. Head, Neck & Shoulder—9½ x 11½ in Oblong. 6 plates.

There is a large portfolio of loose drawings in all stages which show his method of work. It is evident that he was discriminating, since there are many discarded drawings.

The process is that of superimposed plates with cut-outs to show the underlying structures. The various structures, blood vessels, muscles, etc., are shown in their natural colors. The cutting on some of the plates is so delicate, particularly in the plates of the extremities, that it must have made it impracticable to publish those sections.

The first step in the production of a plate was to draw the outline of the part to be depicted. If of the ground or bottom plate, it was then colored. If a plate was to be superimposed, the cut-outs were then made, probably with a very sharp knife, and the structures were colored.

The registration of the plates called for the most delicate kind of work. The foundation for the large series of trunk and extremities is the bony structure, for the head and neck, the venous system. The back of each plate is covered with descriptive text.

The part which I have called the seventh experimental one is different from the other six, as it uses the method of superimposed flaps. It is a drawing of the head and neck, front view, to which are attached two complicated series of superimposed flaps and one single flap. This drawing is not numbered or lettered and, for this reason, I consider it an experiment on the part of Dr. Ramsay.

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MEDICAL PROGRESS

PROGRESS IN PEDIATRICS

BY JOHN LOVETT MORSE, M.D.*

IN medicine it is very difficult to tell just what is progress. To many, motion is synonymous with progress. Unfortunately the result of motion is not infrequently retrogression instead of progression. To one with a background of forty years, it often seems as if what is thought to be progress is much like the progress of the squirrel in his whirligig. Nevertheless, some progress is being made in many directions in pediatrics.

I shall not attempt to review or summarize the literature of the last year. Any one who is interested can find abstracts of all the articles dealing with pediatrics in the literature of the world in the American Journal of Diseases of Children. I shall simply take up and discuss informally the subjects which seem to me most important and most interesting.

WHITE HOUSE CONFERENCE

The most important event in the past year is the final report of the White House Conference on Child Health and Protection. The reports of the various committees, soon to be published, represent the combined efforts of the best informed and most interested men and women in the country. They present a summary of our present knowledge of children in health and disease, physically and socially. This may not be progress, but it furnishes a base from which to advance. Whether advance is made or not, and, if advance is made, in what direction it is made, depends very largely on the interest taken by the pediatrists of the country and the share which they take in it. They have not taken sufficient interest in the past, nor done their share. Whatever else the Conference may have done, it has aroused the interest of the general public in child welfare to an extent that it has never been aroused before. The public demands that something be done. Much will be done. What is done and how it is done depends very largely on whether pediatrists or lay enthusiasts lead. Here is a real opportunity for progress.

AMERICAN ACADEMY OF PEDIATRICS

Another important event is the organization of the American Academy of Pediatrics. This society was organized primarily to meet the need shown by the findings of the White House Conference, namely, of an organized, national association of trained pediatrists to assist in carrying out and to help in guiding and directing the various undertakings shown to be necessary by these investigations. Among these undertakings are the improvement of the teaching of pediatrics in our medical schools and the standardization of institutions caring for infants and children. An even more important function of this society is to increase the interest of pediatrists in the campaign which is now being carried on for the improvement of the health of our children, to urge them to take part in it and to induce them to lead it, as they should. If they do not lead it, others will, to the disadvantage not only of the children, but also of the pediatrists themselves. This undertaking is certainly in the line of progress.

NUTRITION

Many papers have appeared showing that there is something to nutrition besides height and weight. The fallacy of trusting blindly to tables of height and weight without regard to nationality, heredity and type is beginning to be recognized. The importance of other factors than food is being appreciated. The caloric value of foods, at first overestimated, then underestimated, is now being recognized again. No more attention is being paid, however, to the digestibility of foods.

Vitamins. The vitamins are receiving the most attention. There are innumerable reports on the results of an insufficiency of one or more vitamins in animals and a few on the effects of an excess. Naturally there are no reports of such experiments on children, although occasionally, as in Bloch's children, the conditions have corresponded to those of an experiment. In general, the reports dealing with children assume that certain symptoms are due to a deficiency of certain vitamins or attempt to show that certain groups of children given foods containing large amounts of certain vitamins did better than other groups not given so much and that they did better because they received more. Most of them are not very convincing to one who is not an enthusiast. There is no doubt that the information obtained from animal experiments is very valuable. It must be remembered, however, that human beings are almost never completely deprived of a vitamin, at any rate under the conditions which prevail in this country, and that a very small amount of a given vitamin is necessary to prevent a deficiency. Care must be exercised, therefore, not to overestimate the importance of avitaminosis in human beings on the basis of the results of animal experimentation.

Unfortunately many commercial interests have taken advantage of the opportunity of ex-

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ploiting the vitamins. Thoughtless physicians have followed their lead and thoughtful physicians have had to keep up with them in order to hold their patients. Every nurse, dietitian and nutritionalist knows, or thinks she knows, all about the vitamins and prescribes them without consulting a physician. If they do not, the mother does. Consequently a remarkable and valuable discovery is being overemphasized and undue attention is being paid to the vitamins. As the result, it is probable that most babies and children are now getting far more of the vitamins than they need. Fortunately for them, unless their digestion is disturbed, an excess of vitamins, unless perhaps of D, apparently does no harm. The limits between the physiologic and toxic doses of this vitamin are so wide, however, that the chances of a toxic dose being given are very small.

One of the most interesting and instructive papers on the vitamins is that of Bloch (*American Journal Diseases of Children*, 1931, 42, 263). He studied 64 patients, blind from xerophthalmia as the result of an insufficiency of vitamin A in Denmark during and after the World War. He found that, while a deficiency of vitamin A interfered temporarily with normal growth, it did not prevent the attainment of normal physical and mental development later. Most interesting in relation to all that is being written and said about vitamins and the development of the teeth and dental caries are his conclusions that, "In man, deficiency in vitamin A has no specific injurious effect on the formation and calcification of the teeth. A disposition to dental caries, therefore, cannot be due to deficiency in vitamin A in infancy. Probably the same applies to a deficiency in vitamins B and C; in this respect one cannot apply the conclusions from experiments on guinea pigs to man. Guinea pigs are hypersensitive to deficiency in vitamin C, and their incisors grow continuously. In man dental anomalies are due chiefly to abnormalities of the mineral metabolism during the period when the teeth are calcifying."

A good deal has been written, largely on the basis of animal experimentation, to show that a deficiency of A lowers resistance to infection. This has been a great boon to the manufacturers of cod liver oil. There is a great difference, however, between an animal entirely deprived of A and infected experimentally and a human being with at most a slight deficiency of A and the ordinary exposure to infections of the upper respiratory tract. It is probable that a good condition of general nutrition is to a certain extent a protection against infection. If cod liver oil does improve nutrition, it might be of benefit for this reason, not because of the vitamin A in it. Those who claim that in children cod liver oil prevents infection have not shown that the children had a deficiency of A before they took the cod liver oil. The most recent papers seem to show, moreover, that infections are just as common in children getting cod liver oil as in those who do not. In this connection it is noteworthy that less is heard recently about ultraviolet irradiation protecting against upper respiratory infections.

It should have been obvious that irradiated ergosterol could not take the place of cod liver oil. Cod liver oil contains both vitamins A and D, viosterol only D. In the absence of A, animals receiving viosterol die sooner than those that do not. D alone does not promote growth. It seems unreasonable, therefore, to substitute viosterol for cod liver oil unless it is certain that a baby is getting sufficient A in some other way. Some preparations of cod liver oil may be weak in D. The addition of viosterol to them would be reasonable. It is more reasonable, however, to use a cod liver oil standardized to contain sufficient D.

An interesting development is the production of cow's milk of high antirachitic potency by feeding cows with irradiated yeast or irradiated ergosterol. Irradiated yeast induces a more potent milk than viosterol. This milk has been tried out clinically by Hess (*Journal American Medical Association* 1931, 97, 370), Wyman, and others. It is being sold under the name of Vitamin Milk. This seems to be a simple and inexpensive way of giving vitamins in the food.

Anorexia. This problem is always before us. Undoubtedly the cause is most often psychologic. Before accepting it as such, however, every physical cause must be ruled out. As Schlutz says (*Journal American Medical Association,* 1930, 94, 73) "It is clear that the problem of chronic anorexia in childhood is complex, and often of great difficulty. Its satisfactory solution depends on careful analysis of the fundamental and contributory factors in the case, and on the exercise of much patience, tact and attention to the many minute details in the reconstruction program." Loeber and Weinberger (*American Journal of Diseases of Children* 1931, 42, 767) in 20 of 36 patients with anorexia found hyperacidity of the gastric contents and in 3 hypoacidity. In one instance there was a gastric ulcer and in another a duodenal. In the cases of hyperacidity the stools showed improper digestion of starch in 12 and of fat in 6. They feel from their results that it is justifiable to subject a child with anorexia to the ordeal of a gastric analysis.

Obesity. An interesting observation in connection with nutrition is that of Newburgh (*Journal American Medical Association* 1931, 97, 1059). He discusses the development of the conception that obesity is not infrequently the result of endocrine dysfunction, and then goes on to show that in the past the problem has not been studied with sufficient care. He concludes from his studies that, "There is no specific metabolic abnormality in obesity. All obesity is

'simple obesity'. The increase in weight merely represents an inflow of energy greater than the outflow. Failure of the primitive instinct to adjust the inflow of energy to the bodily needs is always the immediate cause of both leanness and obesity."

Infant Feeding. The majority of the pediatrists of this country having satisfied themselves that infant feeding is a simple proposition and that they know all about it, it is natural that very little is written about it. Most of the literature on the subject comes through the mails in the form of thinly disguised advertisements, and most of the information which physicians receive is from the agents of the manufacturers of canned foods. Some of these, by the way, are more rational than the routine mixtures prescribed by the doctors. The various mixtures of the dextrins and maltose continue to be used almost exclusively. Occasionally a paper appears, like that of Gerstley (*Journal American Medical Association,* 1930, 95, 1233) showing that lactose, the sugar of human milk, is not so poisonous for babies as so many seem to think. There is very little prospect that lactose will take the place which it should in infant feeding, however, unless some manufacturer of milk sugar comes along who has more money to spend in advertising than the makers of the maltose-dextrins preparations and corn syrup.

An interesting observation in this connection is that of Holt (*American Journal of Diseases of Children,* 1931, 42, 726) and his co-workers. They found that "The physical and chemical differences between the fats of human and cow's milk are not so constant as has been believed. From microscopic examinations of single specimens it is not possible to distinguish breast milk from cow's milk." This raises the question as to whether the advantages claimed for homogenization are justified.

"Intestinal Intoxication." I shall not attempt to define this term or others used synonymously. Everyone recognizes the condition which is meant and which develops in the course of the diarrheal diseases of infancy. Dehydration is undoubtedly an important factor in the causation of the symptoms. Changes in the chemistry of the blood are present. The treatment which has been developed in recent years as the result of the recognition of these factors is a great advance over that of the past. The latest development in treatment is the use of a continuous venous drip of dextrose solution, as has been used by the Horsleys in adult surgical conditions. Karelitz's paper, entitled "Treatment of Toxicosis with the Aid of a Continuous Intravenous Drip of Dextrose Solution" (*American Journal of Diseases of Children,* 1931, 42, 781), describes this method in detail.

The Thymus and Status Lymphaticus. The discussion as to what constitutes an enlargement of the thymus, what a thymus does, if it is enlarged, whether there is such a thing as status lymphaticus or not, what the thymus has to do with status lymphaticus, and whether status lymphaticus, if there is such a condition, is a cause of sudden death still goes on. O'Brien repeats his old arguments (*American Journal Roentgenology,* 1929, 21, 271) and recommends irradiation for all children showing a "broadened mediastinal shadow" in whom general anesthesia or operation is contemplated. He advises this because he believes that there is no evidence that the thymus is not an integral factor in causing death and because involution of the thymus takes place rapidly after treatment with the Roentgen ray. Radiologists in general apparently agree with him. Most of the papers on the subject are merely restatements of old opinions without any corroborative data and are consequently of no importance. The medical examiners still persist in giving status lymphaticus as the cause of sudden deaths which they cannot explain easily otherwise. Perhaps this is wise when there is no reason to suspect foul play, as it saves a great deal of trouble and pleases everybody. Carr (*Archives of Pediatrics,* 1931, 48, 202) apparently believes in status lymphaticus and that it is a cause of sudden death. His own figures of 31,163 operations for tonsils and adenoids at the New York Eye and Ear Infirmary in 24 years with only 3 deaths, shows that it cannot be very common. These deaths were attributed to status lymphaticus, but no autopsies were performed. He gives some statistics from the medical examiner's office on sudden death in children in the Borough of Manhattan in 1929. Some died during anesthesia, others not. One of those dying under anesthesia had had roentgenologic treatment for 3 months. The thymi varied in weight from 14 to 50 grams. In these, as in so many other groups, the diagnosis rests on reports of medical examiners, whose chief object is to determine whether a death is medicolegal.

Greenwood (*Journal of Hygiene,* 1930, 30, 403) quotes and analyzes Hammar's work and then reports his study of the thymi in a group of children dying from unexplained causes. Histologic changes that might be of diagnostic aid were not found. He believes that sudden deaths occur no more frequently in persons with heavy thymus glands than in others. He is confident that "Status-Thymico-Lymphaticus, etc., is a mere legal fiction." West (*Archives of Pediatrics,* 1930, 47, 671), basing his conclusions on 475 mediastinal roentgenograms, notes that respiratory stridor alone may be due to many causes. He thinks that cyanosis of the lips and nails, increased when the child is lying on the abdomen or has its neck extended, and occasional periods of apnea with extreme weakness are more characteristic. He does not believe in routine treatment of thymi without symptoms or be-

fore operation. Pancoast (*American Journal Medical Sciences,* 1930, 180, 745) pays little or no attention to the width of the shadow of the thymus. He stresses the importance of lateral views in both phases of respiration to determine compression or buckling of the trachea at the thoracic inlet, the amount of collapse during expiration and the exact effect produced by the upward push of the wedge-shaped mass into the outlet. He thinks that all that the thymus can do is to exert pressure on the trachea, vessels and recurrent laryngeal nerves. He believes that it may cause sudden death in this way. He mentions other forms of respiratory obstruction and discusses the differential diagnosis. Kennedy and New (*Journal American Medical Association,* 1931, 96, 1286) say that the diagnosis of enlarged thymus is often made when the symptoms are due to other causes. They believe that enlargement of the thymus is seldom the cause of death and think it unnecessary to carry out preoperative roentgen treatment of the thymus. Laryngologic examination is essential for a positive diagnosis. Daffinee, Garland and Gray (*New England Journal of Medicine,* 1931, 205, 1182) discuss blood sugar, status lymphaticus and surgical operations. This article is well worth reading. Incidentally, they refer to the conclusion of Young and Turnbull in their study under the auspices of the British Medical Research Council (*Journal Pathology and Bacteriology,* 1931, 34, 213) that there is "no evidence that so-called 'status thymico-lymphaticus' has any existence as a pathological entity".

ALLERGY

Several articles interesting to pediatrists have appeared recently which recall to our attention facts which are well known, but which are often overlooked or disregarded. Rowe (*Journal American Medical Association,* 1931, 97, 1440), in a paper entitled "Gastro-Intestinal Allergy", emphasizes the frequency with which symptoms referable to the gastro-intestinal tract are due to allergy and the great variety of these symptoms. Balyeat and Rinkel have written on "Allergic Migraine in Children" (*American Journal Diseases of Children,* 1931, 42, 1126). They emphasize the differences in the symptomatology of migraine in children and in adults. In children the prodromal symptoms are languor, loss of appetite and abdominal discomfort, instead of irritability and abnormal hunger. The temperature is often slightly elevated, sometimes to even 104°F. Gastric symptoms are more marked, while headache is a minor symptom. The predominant symptoms are periodic gastric disturbance, which is frequently accompanied by severe pain in the stomach, vomiting, coated tongue, slight fever and headache, which is often not severe. Treatment consists in elimination of the predisposing factors and a careful investigation of and removal from the diet of the foods to which the child is specifically sensitive. Levin reports a case of allergic epilepsy in a child of 3 and gives a number of references to literature (*Journal American Medical Association,* 1931, 97, 1624). These reports seem to justify his conclusion that "A careful investigation of epileptic patients from the allergic standpoint seems advisable."

RHEUMATISM

I do not feel competent to discuss properly the present conceptions of rheumatic fever and other rheumatic infections, rheumatic heart disease, or the part which allergy plays in the production of the various manifestations of the disease. In brief, it is now held that rheumatism is a chronic disease, like tuberculosis, caused by the streptococcus hemolyticus and that many, if not all, of the symptoms are the result of allergic sensitization. Dr. Swift, the greatest authority on these matters in this country, gave an admirable presentation of his views at a recent meeting of the New England Pediatric Society. They are summarized in his Hektoen Lecture on Rheumatic Fever (*Journal American Medical Association,* 1929, 92, 2071). Unfortunately, not all of his followers are so conservative and level-headed as he is. I am somewhat doubtful as to whether all the symptoms which are attributed to rheumatism are really rheumatic in origin. It seems reasonable to suppose, for example, that children, like adults, may have various pains and aches as the result of overexertion, fatigue, injury and chilling, which are not rheumatic. Seham (*American Journal of Diseases of Children,* 1931, 42, 503) has called attention to the fact that "growing pains" are not always rheumatic. It seems to me also that further proof is necessary before we can accept the dictum that the heart is involved in every case of rheumatism. Admitting that rheumatism is a chronic disease like tuberculosis, why should not recovery occur in some cases as it often does in tuberculosis? It seems to have been shown that treatment, whether curative or preventive, with antisera is of little or no benefit. Treatment by intravenous vaccination with hemolytic streptococci to prevent the recurrence or recrudescence of symptoms seems more encouraging. The use of this method does not appear justified at present, however, outside of special cardiac clinics.

Chorea. Less is heard about phenyl-ethyl-hydantoin (nirvanol) in the treatment of chorea than a few years ago. This is natural, as the by-effects are not only disagreeable, but occasionally dangerous and the relief of the symptoms far from constant. It bids fair to pass out of the picture as have so many other methods in the past. The latest treatment advised

is the induction of fever by intravenous injections of typhoid-paratyphoid vaccine (Sutton, *Journal American Medical Association,* 1931, 97, 299). Good results are claimed, as is usual for new methods. Time will show what it amounts to. Incidentally, how does this fit in with the "rheumatic" origin of chorea? Will it also help "rheumatic heart disease"?

Tonsils. The discussion as to the part which the tonsils play in the etiology of rheumatism and as to whether recurrences or recrudescences of the rheumatic infections are increased or diminished by their removal still goes on. The answers to these questions seem no nearer than they did ten years ago. The tendency appears to be, however, to believe that the removal of the tonsils is of less value in preventing the development or recurrence of rheumatic infections than was formerly supposed. Sheldon (*Lancet,* 1930, 2, 394) found, for example, that tonsillectomy did not give encouraging results as to the occurrence or recurrence of rheumatic manifestations.

Selkirk and Mitchell (*American Journal Diseases of Children,* 1931, 42, 9) call attention to the unsatisfactory basis on which the indications for removal rest and say that personal opinions are of little worth in evaluating the results that are obtained. They studied 130 cases after the removal of the tonsils and adenoids and state that their results increase their skepticism of the conclusions drawn in many of the studies made by others. Their paper is concerned chiefly with the statement of the difficulties surrounding the whole problem. Incidentally, they give many references to recent literature on the subject. They found in their study of children three years after operation that there was a lessened incidence of colds, nasal obstruction and sore throat, while sinus infection, headache and growing pains were increased in frequency. They emphasize the facts that too little attention is paid in their own and other studies to certain modifying factors and that the neglect to consider these factors often invalidates the conclusions. Among these factors are age, sex, race, heredity, financial class, season, effect of adenotomy alone, length of observation after operation, source from which the history and other data are obtained, incidence of tonsillectomy in the community at large and the suitability of the control group. They further say that many of the symptoms and conditions popularly supposed to be associated etiologically with diseased tonsils are those in which the natural course and incidence, regardless of the effect of tonsillectomy, are not known. Many of them, too, are affected by other factors than tonsillectomy in an as yet unknown manner.

Kaiser (*American Journal of Diseases of Children,* 1931, 41, 568) from a study of 4400 controlled children over a period of 10 years concludes that certain infections have a close relationship to the presence or absence of tonsils and adenoids. Other infections are not influenced favorably or unfavorably by the presence or absence of this lymphoid tissue. A few infections seem definitely more common in the absence of tonsils. The removal of tonsils and adenoids influences favorably the incidence of colds in the head, sore throats, cervical adenitis, otitis media, rheumatic fever and rheumatic heart disease, diphtheria, scarlet fever, nephritis and dental infections. It influences but little, if at all, the incidence of chorea, measles, laryngitis, tuberculosis and malnutrition. The incidence of bronchitis, pneumonia and sinusitis is increased. In the light of the criticism of Selkirk and Mitchell these results should not be taken seriously, especially as the differences between the groups operated and not operated upon were, in most instances, relatively slight.

My opinion is that, in spite of all the tonsils which have been removed and in spite of all the studies which have been made and the papers which have been written, it is impossible to know in the majority of cases what will be the effect of the removal of the tonsils on the incidence of the so-called "rheumatic infections" or of others. Improvement in general will result from the removal of tonsils causing gross obstruction. Improvement of the general condition can be expected after the removal of tonsils showing definite evidences of chronic infection; probably also a diminution in the number of secondary infections. In the vast number of cases in which the tonsils are not obstructive and in which they are not definitely diseased, it is impossible at present, in my opinion, to know whether removal will do good or harm. I am sure, at any rate, that tonsils should not be removed indiscriminately as a routine measure, but only after due deliberation and consideration in each individual instance.

MISCELLANEOUS

Lead Poisoning. Attention has been directed in the last few years to lead poisoning in young children as the result of eating paint, and the relative frequency of cerebral symptoms in such cases. It has also been noted in many clinics that in growing bones, lead may be deposited at the growing ends and show a dense shadow with the roentgen ray in the same way as after the administration of elementary phosphorus. Park, Jackson and Kajdi (*American Journal Diseases of Children,* 1931, 41, 485) have written the only paper on the subject which I have seen. There may be others. These changes in the bones, as shown by the roentgen ray, are often of much assistance in diagnosis. It must not be forgotten, however, that similar shadows may be produced by the other heavy metals

and that, even if the shadows show the presence of lead in the bones, the symptoms which the child shows may be due to something else.

Gonorrheal Vaginitis. Dooley (*American Journal Diseases of Children,* 1931, 42, 1086) followed up a series of 32 cases of gonorrheal vaginitis in children at the Johns Hopkins Hospital Dispensary in an effort to determine what sequelae, if any, resulted in adult life. His findings "Strongly corroborate the contention that gonorrheal vulvo-vaginitis in young girls has few sequelae in adult life and in particular seem to negate the assertion that the disease contributes toward sterility."

Purpura in Meningococcus Infections. McLean and Caffey's paper (*American Journal Diseases of Children,* 1931, 42, 1053) was written primarily to show the value of smears from purpuric lesions as an aid in the early diagnosis of meningococcus bacteriemia. Smears from 18 of 32 cases were examined for meningococci. These were found in 15, or 83%. In 16 of these 18 cases blood cultures were made approximately simultaneously. Smears were positive in 13 and cultures in only 10. It must also be remembered that results are obtained much earlier with smears than with cultures. Smears from the purpuric lesions may be positive before any changes are demonstrable in the cerebrospinal fluid. They conclude that "Smears from the purpuric skin lesions in meningococcus bacteriemia offer a rapid, exact and convenient method for immediate bacteriologic diagnosis. In 12.5% of cases it was the only method by which an immediate bacteriologic diagnosis could be made."

Treatment of Hemophilia by Protein Sensitization. Eley and Clifford (*American Journal Diseases of Children,* 1931, 42, 1331) have treated 8 children suffering from hemophilia at the Children's Hospital, Boston, with horse serum according to the method of Vines and Mills. In each case there was a definite reduction in the coagulation time of the capillary blood. That of the venous blood was not altered. The treatment was of no value in controlling hemorrhage from the larger blood vessels or in preventing the occurrence of hemorrhagic effusions into the joints, subcutaneous hematomas or intestinal bleeding. It was of convincing benefit in the prevention or control of bleeding from superficial injuries.

General Articles. Several papers have appeared in the past year which are worthy of careful perusal by every thoughtful pediatrist. Among them are "The Menace of Psychiatry" by Brennemann (*American Journal Diseases of Children,* 1931, 42, 376); "The Human Side of the Hospital", also by Brennemann (*Journal American Medical Association,* 1931, 97, 1487); "Looking Forward in Pediatrics" by Aldrich (*Journal American Medical Association,* 1931, 97, 363); and "The Next Twenty Years" by Zinsser (*Science,* 1931, 74, 397 and Editorial, *Journal American Medical Association,* 1931, 97, 1388).

THE PREVENTION AND CONTROL OF VENEREAL DISEASES

A report of considerable interest recently submitted to Congress by Surgeon General H. S. Cumming deals with the prevention and control of the venereal diseases. During the fiscal year recently ended, the State health officers of 43 States reported to the Public Health Service slightly more than a quarter of a million cases of syphilis and more than 150,000 cases of gonorrhea. These diseases as a class continued to exceed the number of cases reported during the year of any other single communicable disease with the exception of measles.

The malaria treatment of general paralysis of the insane is now generally considered the most effective for this condition. As a result the Public Health Service receives each year an increasing number of requests for infected mosquitoes for inoculation purposes. Plans are now under way to supply this need and to make further studies of this method of treatment in coöperation with various institutions where it is being applied.

Increasing importance is being attached to the early diagnosis and treatment of syphilis. The possibility of extending to rural and remote districts the advantages to be derived from early diagnosis by means of microscopic examination was studied and one method was worked out. This method has been tested by other observers and at present is in operation by one State health department and under consideration by others.

A special study of syphilis among negroes in rural areas in coöperation with State and local health authorities, inaugurated in 1929 with the financial assistance of the Julius Rosenwald Fund, was extended to include areas in five other States. A total of 28,195 negroes were serologically tested, and of this number 5,785, or 20.5 per cent, were found syphilitic on the primary survey. Of these positive cases, approximately 75 per cent were placed on intravenous medication, and at the close of the year 45 per cent of them had received treatment in amount considered sufficient to render them non-infectious. It is unfortunate that the methods used cannot be applied to all classes of population.

A one-day census of the cases of venereal diseases taken in three cities shows marked variation in the relative incidence and prevalence of these diseases as observed in different localities. A resurvey of one entire State and of a number of communities originally studied in 1927 made in order to determine the trend of venereal diseases and the effect of the methods employed for their control during the three-year period, disclosed the significant point that in communities where increases in the prevalence rates were found they occurred in the group of chronic cases, an indication that patients are being treated for a longer time than formerly.

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 18131

FOUR WEEKS' DYSPNEA, WEAKNESS AND COUGH IN A MAN OF FORTY

MEDICAL DEPARTMENT

First admission. A man of forty doing night labor in a restaurant entered three months before his second admission complaining of weakness, cough and dyspnea of four weeks' duration.

Although he was told by his Lodge doctor twelve years before admission that he had a weak heart, he had always felt strong until six weeks before admission. At that time he began sweating a great deal more than usual. Four weeks before admission a slight unproductive cough which he had had for five months became worse and productive of a very little white sputum. At the same time he became very dyspneic on climbing stairs and was awakened three or four times during that week by paroxysmal dyspnea, the attacks passing off after he had sat up for five or ten minutes. At this time he was very weak and had two or three attacks of dizziness while at work, each lasting a few minutes. He had had none for three weeks. He had lost four pounds in four weeks. He had always been nervous, but during the past two weeks he had been more so and very irritable. For two weeks he had had palpitation on exertion. Two weeks before admission he gave up work. Ten days before admission he became chilled. Since that time the weakness, dyspnea and cough had been worse. Four days before admission his skin became very yellow. The color lasted for two days. This had happened before without other symptoms five or six times in the past fifteen years. His ankles were swollen for the first time on the morning of admission. He attributed his illness to his work, which was very hard for him, requiring stair climbing and some work as a porter.

His mother died at fifty-five of heart trouble.

He could remember no illness except syphilis nine years before admission, for which he was treated with injections of mercury in his arm. Immediately following the treatment one finger became drawn in so that he could not straighten it.

Clinical examination showed a man slightly underweight, perspiring freely. The skin was moist and cool. Over the right clavicle and right abdomen were two or three pin point petechial areas which partially faded on pressure. The eyes were wide, staring and slightly prominent. Convergence was poor. There was lid lag. The pharynx was roughened and red, the tonsils chronically inflamed. The heart was slightly enlarged to the left. The apex impulse was felt in the fifth space 8 centimeters to the left. The left border of dullness was 8.5 centimeters to the left of midsternum, one centimeter outside the midclavicular line. The right border was 3 centimeters to the right; the supracardiac dullness was 7 centimeters. The impulse was maximum at the xiphoid. The rate was rapid and regular. The sounds were only fair. There was a soft systolic murmur at the apex. There was a protodiastolic gallop rhythm with a questionable brief middiastolic puff at the apex, or a third sound. The aortic second sound was greater than the pulmonic second, but not ringing. There were no murmurs at the base. The radials were slightly sclerosed. The temporals were tortuous. The blood pressure was 150/80. At the bases of both lungs posteriorly there was dullness with diminished breath sounds, tactile fremitus, whispered and spoken voice and sticky râles. He held his abdomen very tense so that palpation was extremely unsatisfactory. The liver dullness and right upper quadrant tenderness extended two fingerbreadths below the costal margin, where a questionable liver edge was felt. There was pitting edema of the ankles extending one third the way up the leg. The middle joint of the left index finger was in complete flexion and immovable. The pupils and reflexes were normal. (Romberg was not done.)

The amount of urine was normal when recorded. The specific gravity was 1.018 to 1.034. Six examinations showed no albumin. Two showed a green test for sugar. All but one showed 3 to 30 white cells per field. Three showed occasional red cells. Blood examination showed 9,020 to 17,200 leukocytes, 65 to 75 per cent polynuclears, hemoglobin 70 to 80 per cent, reds 4,060,000 to 6,550,000. Three smears showed slight variation in size and shape, moderate achromia, abundant platelets. Two Wassermanns and two Hintons were strongly positive. One blood culture was sterile. Another was contaminated. The basal metabolic rate two days after admission was +29, three days later +36, three weeks after this —2. The nonprotein nitrogen was 40 milligrams, the blood sugar 107 milligrams. Widal was negative.

The chart was normal on admission. The day before the lumbar puncture the temperature rose to 100.5° and the evening after the puncture to 102.2°. It remained somewhat elevated, usually 98.4° to 100° or 100.5°, until

two days before his discharge. The pulse was 75 to 124. In general it came down during the first two weeks. The respirations were 20 to 37.

X-ray examination showed the measurements of the heart considerably above normal; right border 6.5 centimeters, left border 11, total transverse measurement 17.5, length 18.3, base 8.4, great vessels 7, chest 27.4. The enlargement was both to the right and downward to the left. The supracardiac shadow was within normal limits. There was a hazy area of dullness at the right base. The hilus shadows were considerably increased in width and density. Examination of the teeth showed apical abscesses. The sinuses were negative. The left index finger showed no evidence of disease of the bone. The joint spaces were perhaps slightly narrowed.

There was essentially no change in the clinical picture during the first three days. The râles in the lung shifted to whichever side the patient lay upon. The first heart sound was reduplicated. There was a definite blowing systolic murmur when the patient lay on his left side. He continued to sweat profusely. A nocturnal attack of dyspnea was promptly relieved by adrenalin. An electrocardiogram three days after admission showed sino-auricular tachycardia, rate 115, right axis deviation, index —24, angle +104°, low T_1 and T_2, slightly inverted T_3. A lumbar puncture at this time was negative. Under digitalis and quinine bismuth iodide he definitely improved. By the tenth day another electrocardiogram showed normal rhythm, rate 90, the other findings as before. At the end of two weeks the heart showed definite diastolic apical and aortic murmurs with a systolic as before. At the end of three weeks x-ray examination showed slight decrease in the size of the heart shadow, the total transverse measurement being 17 centimeters, the chest 26.5, the length of the heart 17. The patient was now comfortable sitting up twice a day and the temperature was flat, but the aortic murmur was increasing. Four weeks after admission the patient was discharged improved.

History of interval. For the three weeks following discharge the patient stayed in bed eleven hours at night and sat or lay down much during the day, but was also on his feet more or less. After resting for a fourth week he returned to work feeling very well. After a few nights of his work as porter and dish-washer he began to have pains in his legs and dyspnea on slight exertion. At the end of another week he had to stop work because of these symptoms. For the next three weeks he spent some days in bed and others walking about. He did not improve and for the week before readmission was worse. He had poor appetite, a slight head cold and cough, occasional diarrhea and nocturia. He slept very poorly. He had been very dyspneic. For two days before readmission he had had swelling of the ankles. Since his discharge he had taken digitalis as prescribed.

Second admission, two months after his previous discharge.

Examination showed him in the cardiac position, perspiring, with Cheyne-Stokes respiration. The skin was negative. The left border of dullness was found 11 centimeters from midsternum in the fifth space, the midclavicular line 9 centimeters, the supracardiac dullness 6 centimeters. The rhythm was regular. There was a systolic murmur heard all over the precordium, best heard at the third interspace. There was also an early blowing diastolic heard at the base. No presystolic was heard. The blood pressure was 150/75. An electrocardiogram showed normal rhythm, rate 100, right axis deviation, low T_1, inverted T_2 and T_3, slurred QRS waves in all leads. The lungs showed râles at both bases. The right side posteriorly below the scapula was flat, with distant bronchial breathing, diminished tactile fremitus and egophony. There was marked pitting edema of the legs to the knees, edema of the sacrum and some edema of the back. The sclerae were muddy. The pupils were Argyll Robertson.

The urine showed the slightest possible trace to a trace of albumin at six of nine examinations, a green test at four, white cells at all, no red cells. The blood showed 28,400 to 14,300 white cells, 68 per cent polynuclears, hemoglobin 65 to 80 per cent, reds normal. The non-protein nitrogen was 54 at admission, falling to 35 three weeks later. Three days before death it was 42.

The temperature was 96° to 102.2°, the pulse 51 to 131, the respirations 18 to 50, with an increase to 65 the day of death.

The patient was kept comfortable with morphia the day of admission. That evening he began to cough up small amounts of blood, so venesection of 450 cubic centimeters was done with considerable improvement. The following day a chest tap was done in the eighth right interspace. 1100 cubic centimeters of dark yellowish cloudy fluid was withdrawn, specific gravity 1.012, 10,300 cells, mostly fresh and crenated red cells. On the fifth day a pleuropericardial friction rub was noted. The murmurs seemed to be preponderantly aortic. Salyrgan was begun. That night he had several mild attacks of dyspnea. The next day another chest tap gave 1550 cubic centimeters of slightly bloody fluid, specific gravity 1.012. The following evening the pulse was found to be bigeminal and alternating, every other beat coming through at 110 millimeters mercury. The patient however felt better than usual. The blood pressure was 130/50 and the pulse regular. On the ninth day alternation of beats was again noted. The patient appeared stronger. The edema of the legs was almost gone. There was very slight

response to salyrgan. The following afternoon he was nervous and slightly dyspneic. The pulse was 50, with an occasional extrasystole. The following day there was questionable bigeminy with extrasystoles and possible fibrillation. The blood pressure was 150/70. There was fluid in the right pleura up to the first space below the angle of the scapula. One blood culture showed no growth. Another showed bacillus subtilis in one flask, no growth in the other. At the end of two weeks the patient felt stronger and was very anxious to sit up, so he was given the privilege for half an hour. He continued to run a jagged fever and had a café au lait color. That evening he felt a little choked up again. The following day an electrocardiogram showed intraventricular block. During the next week the edema increased and the patient became more restless. Slight Cheyne-Stokes respiration developed. There was good response to salyrgan. He gradually sank. A month after admission he was slightly irrational. The pleuropericardial friction rub came and went. He became nauseated and vomited, then disoriented and noisy. Seven and a half weeks after admission he died.

Clinical Discussion

BY RICHARD C. CABOT, M.D., AND
AUBREY O. HAMPTON, M.D.

NOTES ON THE HISTORY

Dr. Cabot: The patient's Lodge doctor told him twelve years ago that he had a weak heart; so that we trace a possibility of disease back to his twenty-eighth year.

One thing we can be sure of is that his own idea that his trouble is due to his work is mistaken. People do not get heart disease from overwork. There is no such thing as an athletic heart or any other sort of heart trouble coming from overwork except on top of previous heart damage. Overwork can be ruled out. We think of syphilis nine years back. It appears however that he had been thought to have heart trouble twelve years ago, three years before he had this syphilis. My best initial guess is, then, that he has heart trouble, and the symptoms seem to suggest that it is of a rheumatic type because it started at twenty-eight.

Along with the symptoms of deficient circulation we have two that do not fit in so well, in the first place sweating, in the second place yellowness of the skin, which I do not as yet feel sure about because he has had it so often. With jaundice it does not seem likely that he would have so many attacks. It may mean pallor and sallowness, probably from anemia.

The total suggestions from the history before coming to the physical examination seem to be: (1) possible heart trouble with poor circulation of the ordinary heart failure type; (2) the possibility of another type of heart trouble with sepsis, bacterial endocarditis, which might have given him the sweating with pallor or jaundice.

I can make nothing of that stiffness of the finger after his treatment for syphilis. I do not believe syphilis has any connection with it.

NOTES ON THE PHYSICAL EXAMINATION

The fact that the impulse of the heart was maximum at the xiphoid has no special significance.

The temporals were tortuous, as of course they ordinarily are in health. No one ought ever to mention tortuous temporals in a physical examination unless there is some other change than tortuosity. I remember a physician who himself asked me to look him over because he had become alarmed about his tortuous temporals. I showed him a figure in Gray's Anatomy showing how tortuous normal temporals are, and he felt much better.

That physical examination gives us evidence of passive congestion in the lungs and liver. It gives us some rather dubious evidence about the heart—apparently slight enlargement and gallop rhythm, which is a bad prognostic sign but does not help much as to diagnosis. There is possibly evidence of mitral stenosis, but there is nothing at all distinctive in that questionable middiastolic puff. There is evidence then of a failing heart, but not evidence as to what is making it fail unless it might be mitral stenosis.

The only really important thing in the blood report is the achromia. That ordinarily is a thing one can recognize and not make mistakes about. It has only one significance, secondary anemia. The important thing beyond that of course is the positive Wassermanns and Hintons. We do not yet know whether those have any particular relation to the heart. The symptoms related to the heart are not of the type that ordinarily goes with syphilitic heart disease.

We often get a plus basal metabolic rate in heart disease. The patient had some things in his eyes to suggest that there may have been hyperthyroidism, but I should not think we could be at all sure about that yet.

Right axis deviation seems to me the most important evidence we have in the electrocardiogram, tending to back up the rather small evidence we had before of some mitral disease.

On the whole I should not suppose his fever amounted to anything.

The lumbar puncture was negative. They were looking I suppose for evidence of cerebrospinal syphilis on account of the positive Wassermanns and the history, and they did not find it.

The heart measurements by x-ray examination show distinct enlargement.

Dr. Aubrey O. Hampton: The heart is en-

larged to the right and left, quite prominently to the right.

DR. CABOT: Is that a seven foot film?

DR. HAMPTON: Yes, sir. It is not the usual type of film. There was a double exposure. I think we would conclude that he had certainly as much enlargement in the region of the auricles as in the ventricles. There is no evidence of dilatation of the aorta.

DR. FREMONT-SMITH: Is there any evidence of fluid?

DR. HAMPTON: In this double exposed film it would be difficult to say whether there was fluid or not.

A STUDENT: Does that resemble a water bottle heart?

DR. CABOT: I should say not; what would you say?

DR. HAMPTON: In the typical water bottle shape the heart measurements are about equal to the right and to the left. Here the heart is certainly more prominent than usual to the right, but this is not the water bottle shape.

DR. CABOT: To me the striking thing about that is that it shows so much more enlargement than we found by percussion, by palpation and by direct examination of the heart with the stethoscope. We thought after those examinations that there was some enlargement; this x-ray shows considerable enlargement. It shows the importance of checking by x-ray what we get by our fingers and with the stethoscope.

I think the discharge diagnosis made at this point was syphilitic aortitis with aortic regurgitation, the basis of it being the history of syphilis, the positive Wassermanns and the diastolic murmur. The only point we have against that diagnosis is that apparently he had some heart trouble before he had syphilis. Of course one can have the rheumatic type of heart trouble with aortic disease. I should say on the evidence before us that it would be more logical to call it syphilitic aortitis with aortic regurgitation. Now may we hear what the diagnosis was at the end of the first discharge?

MISS PAINTER: Syphilis, luetic aortitis and regurgitation and possibly rheumatic mitral stenosis and regurgitation.

DR. CABOT: It does not seem to me that we have much evidence of that last. There was only one hearing of a mitral diastolic murmur on which they made the diagnosis of possible mitral disease. Otherwise they agreed with the reasoning I have presented.

A porter's work is the worst sort of work that he could have. It is tragic that the man has to go back to work like that.

There is surprisingly slight increase of the pulse pressure.

The electrocardiogram shows that the myocardium is now beginning to fail.

The pupils were now Argyll Robertson, i.e., due to syphilitic disease.

DR. FREMONT-SMITH: They were normal at the first admission.

DR. CABOT: I do not believe that this condition has developed in two months. I think that it is a difference of house officers or visiting physicians.

DR. HAMPTON: In the right lung he had these lesions which are rather interesting. There is decrease in the size of the heart. The dullness in the right lung is composed of very sharp small rounded areas of consolidation. There is also evidence of involvement of the pleura.

DR. CABOT: Those areas are not so dense as shadows of tumor nodules ordinarily are, are they?

DR. HAMPTON: They are not so sharply defined.

DR. CABOT: I suppose bronchopneumonia is the natural thing to think of.

DR. HAMPTON: We interpreted the dull areas as possible infarcts.

DR. CABOT: Infarcts are a very hard thing to be sure of in x-rays.

DR. HAMPTON: They certainly are.

DR. CABOT: It is just the sort of case in which we should expect infarct.

He began to cough up small amounts of blood; there is still more likelihood therefore of infarct.

Of course bigeminal pulse is not important, but an alternating one is one of the most serious symptoms we have.

DR. FREMONT-SMITH: How could it be both? I have always thought of an alternating pulse as being regular. I wonder whether one could call a bigeminal pulse alternating and draw the same conclusions as one would from a regular alternating pulse.

DIFFERENTIAL DIAGNOSIS

DR. CABOT: I see no reason to change the belief that we had when he was here the first time that he had aortic regurgitation due to syphilis. He has run down faster than rheumatic patients ordinarily do. A rheumatic patient does not generally go to pieces within a year of the first break in compensation. A syphilitic often does. A syphilitic does very well until compensation fails, then goes rapidly down. The clinical course, then, favors syphilis rather than rheumatism. The most discussible question it seems to me is what else besides that did he have. I am going to say syphilitic aortitis with aortic regurgitation, and with the passive congestion and infarcts of the lungs that would go with that. He also seems to have some acute infection. He has leukocytosis and fever and sweats a good deal. We look naturally to the question of that pleural-pericardial

rub, possible pericarditis, and having mentioned the possibility that is all we can do. Infarcts by themselves are enough to give fever, and we have every reason to suppose he has them. Whether he has infarcts plus bronchopneumonia or either of those lesions without the other I do not know how to decide. No evidence of cerebrospinal syphilis has been found it seems to me except Argyll Robertson pupils, so that if the central nervous system was examined at autopsy I should suppose that nothing was found. Of syphilis in the body elsewhere than in the heart it seems to me we have no evidence.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Rheumatic and luetic heart disease with mitral stenosis, regurgitation and aortic regurgitation.

DR. RICHARD C. CABOT'S DIAGNOSES

Syphilitic aortitis with aortic regurgitation.
Passive congestion, general.
Infarcts of the lungs.
Possibly pericarditis.

ANATOMIC DIAGNOSES

1. *Primary diseases.*

Syphilis.
Syphilitic heart disease with aortic insufficiency.
Syphilitic aortitis.
Rheumatic heart disease with mitral insufficiency.
Tricuspid insufficiency, relative.
Septicemia, hemolytic streptococcus?
Acute endocarditis of all valves.
Organizing endocarditis at the aortic vestibule.
Dilatation of the heart, right side.
Congestive heart failure.

2. *Secondary or terminal lesions.*

Diffuse bronchopneumonia of the right middle and lower lobes, the left upper lobe and a portion of the left lower lobe.
Edema of the lungs.
Atelectasis at the base of the left lung.
Septic infarcts, lower lobe of the right lung.
Hydrothorax, left.
Adhesive pleuritis, right.

3. *Historical landmarks.*

Arteriosclerosis.
Cholelithiasis.
Ulcer of the cecum.
Fibrosis of the thyroid.
Chronic thyroiditis.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: We found syphilis involving the aortic valve, but we also found both acute and chronic rheumatic heart disease. The chronic lesion was limited to the mitral valve, which showed marked shortening and thickening of the chordae tendineae and a little thickening of the cusp margins, a lesion that might well have produced some insufficiency, but I think no considerable amount. It was however a very definite old chronic mitral involvement. The aortic valve showed definite separation of two cusps at the commissure. That I feel quite certain occurs in no other disease than syphilis. There were changes also in the remainder of the aorta that were characteristic of syphilis. In addition there was an acute endocarditis with fresh little granules essentially of the rheumatic type on all four valves, aortic, mitral, tricuspid and pulmonary, and a rather marked dilatation of the tricuspid ring, which measured 16 centimeters, so that I think there was relative tricuspid insufficiency.

In the lungs there were both bronchopneumonia and infarcts. There was a pleural effusion, some pleuritis, but no pericarditis.

He had a single stone in the gall bladder.

A STUDENT: Did the thyroid show anything abnormal?

DR. MALLORY: The thyroid showed fibrosis and chronic thyroiditis, but judging from the sections it would be a type of lesion more apt to be associated with thyroid insufficiency than with oversecretion.

DR. FREMONT-SMITH: Was there a culture?

DR. MALLORY: Yes. It showed hemolytic streptococcus.

DR. HAMPTON: Was the aorta dilated?

DR. MALLORY: No, but it showed extensive scarring of a rather peculiar type. Also the endocarditis was an unusual one because it involved not only the valves but a rather extensive portion of the left ventricle. It started about 3 centimeters below the valve and ran up over the endocardium all the way to the valve. It was bright red. It looked much like pannus formation in a joint. I have never seen anything quite like it before.

DR. FREMONT-SMITH: It is not the sort of thing you get in subacute bacterial endocarditis?

DR. MALLORY: No, I think not. The vegetations were minute, and showed extensive organization, which we do not ordinarily find in bacterial endocarditis.

A STUDENT: Was there anything at all in the kidneys?

DR. MALLORY: No.

DR. CABOT: Looking back for a moment to this acute endocarditis, you will remember those petechiae in the first admission which I forgot about in summing up; they might well have been due to that acute process.

DR. HAMPTON: Is it common to have infarcts of the lung in syphilitic aortitis?

DR. CABOT: I think it is common in any va-

riety of heart trouble that gives failure of the right side of the heart, and syphilitic aortitis quite often does. Although the lesion is on the other side, the heart fails as a whole.

Dr. Fremont-Smith: Do you think we could have drawn any conclusions if we had known the heart was fibrillating? Should we not have felt that that is very rare with syphilis?

Dr. Cabot: I do not think that is rare in syphilis, when the heart fails. I have seen it a number of times in the failing stage of syphilitic aortitis.

Dr. Mallory: If one could have been perfectly sure of the correctness of the first examination twelve years before, when a diagnosis of heart disease was made—

Dr. Cabot: Yes; that is it. Perhaps I should have put more emphasis on that.

CASE 18132

ALBUMINURIA WITH EDEMA

Children's Medical Department

PRESENTATION OF CASE

Dr. Richard B. Capps*: A twelve year old white American schoolboy was admitted to the hospital complaining of swelling about the eyes of one month's duration.

The family and social histories are irrelevant.

Past history. As a child he had always been well except for frequent sore throats. He had had measles, chickenpox and pertussis. Three years before admission he had a tonsillectomy and adenoidectomy, with cessation of the sore throats.

Present illness. He was reported as not having been well for the past nine months. One month before entry edema of the eyelids and frequency were noted. These became worse. For the past few days he had had edema of the ankles, and lately he had had occasional headaches and gastro-intestinal upsets. There had been no hematuria or visual disturbances. His weight and appetite were good.

Physical examination showed a well developed and well nourished boy with marked pallor. There was slight puffiness of the lower eyelids and suggestive fullness of the sacral region. There was no edema of the legs. The chest and heart were negative. The blood pressure was 112/66. There were definite signs of fluid in the belly. The examination was otherwise negative.

Laboratory findings. Blood examination showed 8,750 white cells, hemoglobin 80 per cent Tallqvist, 5,020,000 red cells. The smear was normal. The urine showed a large trace of albumin, about 7 grams per liter. The concentration of albumin remained constant, although the total output fell with the lower volume of urine. The sediment showed rare red blood cells on two occasions, occasional white blood cells and frequent granular casts. A renal function test showed 60 per cent excretion in the first hour and 80 per cent in two hours and ten minutes. Mosenthal tests showed ability to concentrate from 1.030 to 1.020, total amount by day 520 cubic centimeters, by night 285. Blood chemistry at entry: non-protein nitrogen 30 milligrams per 100 cubic centimeters; serum protein 4.5 grams per 100 cubic centimeters; cholesterol 420 milligrams; chlorides 620 milligrams. Blood Wassermann and tuberculin tests were negative. The basal metabolic rate was minus 6.

X-ray examination of the sinuses was negative.

Course. The edema gradually became worse, demonstrable especially in the penis and scrotum; it was somewhat intermittent. The boy's weight increased 8 pounds. The serum protein fell to 4.1 per cent and the cholesterol rose to 548. The treatment consisted of low protein diet for the first twelve days and Epstein high protein diet for the last week, but the course seemed to be unaffected by either diet. There were no striking clinical changes. For one week he received 1.5 to 2 grains of ephedrin daily by mouth with no noticeable effect. The blood pressure was not significant. Hot packs and saline cathartics were used to reduce the edema, without effect.

Two weeks after admission he suddenly complained of pain in the left upper quadrant spreading to the epigastrium and right upper quadrant. He vomited and developed marked dyspnea and orthopnea. There was no abdominal spasm or tenderness. Rectal examination was negative. There was considerable fluid in the chest. The temperature rose to 104°. The white cell count rose from 12,000 to 30,400. Massive transfusion was considered as a means of increasing the serum protein and so of decreasing the edema, as it was felt that the patient's lack of resistance was due in part to the edematous condition of the tissues. His general condition became so rapidly poor, however, that transfusion was not done. The following day cloudy fluid containing pneumococcus was removed from both chests. Culture showed type 19. The patient became progressively worse, the temperature rising to 106.5° and the white cell count falling to 2,200. That night the pulse and respirations became weaker. The following morning the patient died.

Clinical Discussion

Dr. George W. Holmes: This film shows a fairly typical picture of a large amount of fluid

*Recently interne on the Children's Medical service.

in both pleural spaces. I suppose this second one was taken after a tap. It does not show anything abnormal.

DR. HAROLD L. HIGGINS: I should like to ask Dr. Capps if this record of the fall of the white count to 2,200 is correct.

DR. CAPPS: Yes; it was 2,200 the day before he died.

DR. HIGGINS: This was a clear cut case of what we call lipoid nephrosis. It ran a rather characteristic course. When the child came in he seemed hardly sick at all. He had hardly any noticeable edema. One might have passed the case as being of no significance if it had not been for the fact that the urine showed such large amounts of albumin without the occurrence of red and white blood cells. In lipoid nephrosis we have practically no red and white cells. There is a low serum protein, and with a low serum protein we have an increase in cholesterol. The kidneys were apparently functioning fairly well and there were no particular indications in the blood of either anemia or infection.

We have found that our cases of lipoid nephrosis sometimes respond to one line of treatment, sometimes to another, and sometimes to none. With this child various kinds of treatments were tried to overcome the albuminuria and other symptoms. First a low protein diet was tried; that proved unsuccessful. After twelve days a high protein diet was tried, also without success. In my own experience with nephrosis I have had success more often with a low than with a high protein diet. Ephedrin was tried here, saline catharties and hot packs. We have frequently used thyroid in our cases of nephrosis, with good results in a few. Other kinds of treatment frequently used are alkalies and ammonium and calcium chloride. In nephrosis the prognosis is never very good. The patients do not get well quickly, as do cases of acute hemorrhagic nephritis, and if they do get over the attack they seem particularly prone to have a recurrence. None of the four things tried for this child was effectual. He became more and more edematous. His weight increased from 74 to 86 pounds; that is, he gained 12 pounds in nineteen days, a gain which pointed towards an accumulation of a considerable amount of fluid. The end in this case was what it so frequently is in nephrosis, a pneumococcus infection, which in this case involved the pleura and peritoneum. The fluid in the chest showed a large number of white blood cells. One is rather surprised to find that a few days later the blood count was so low. I wonder whether there was bone marrow pathology and whether the white cells had gone into the pleuritic effusion and the body had been practically drained of those cells.

A PHYSICIAN: I should like to ask what the rationale of the ephedrin treatment was.

DR. CAPPS: The idea was that possibly ephedrin would constrict the arterioles and capillaries in the kidney and thus perhaps reduce their permeability and stop the loss of albumin. It did cut down the total amount; at least the total amount of albumin fell at that time; but the concentration of the albumin in the urine was exactly the same. The urinary volume fell.

DR. JAMES HOWARD MEANS: I should like to ask Dr. Higgins about the prognosis in general in children presenting this picture. Before the time the edema developed what would the prognosis have been?

DR. HIGGINS: The prognosis in this case I should say would have been an eventual clearing up of the edema and an apparently fairly normal condition. Perhaps a month or two later, however, he would have had a recurrence with edema and go through the whole story again. The clearing up would possibly be the result of some method of treatment, perhaps thyroid, perhaps the clearing out of some focus of infection such as the sinuses. The reason children with nephrosis die is usually intercurrent infection; the edema seems to lower the child's resistance.

DR. FREDERICK T. LORD: Do you think those few red blood cells in the urine are enough to suggest a glomerular complication?

DR. HIGGINS: The red blood cells were seen on only two occasions. My personal reaction is to feel that they have little clinical significance, at least in respect to acute hemorrhagic nephritis.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Lipoid nephrosis.
Pleural effusion, purulent.
Ascites, purulent.

ANATOMIC DIAGNOSES

Subacute glomerular nephritis with secondary nephrotic degeneration.
Anasarca.
Septicemia, pneumococcus type 19.
Pneumococcus infection of the pleural and peritoneal transudates.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: At autopsy we found the gross changes that one would expect with a nephrosis in that the kidneys were enlarged, very pale, somewhat yellowish and showed a thickened cortex. The capsules stripped easily. There were no petechial hemorrhages to be seen on the surfaces. On the other hand, from practical experience with cases as they come along we find that an absolutely pure tubular degeneration is very unusual in

the group of cases we see in this hospital. I should be inclined to agree with Dr. Lord that those red cells should be seriously considered in estimating whether or not one was going to find purely tubular degeneration or whether there would also be inflammatory changes in the glomeruli. When we came to the microscopic examination we did find some such changes.

In the low power view of the kidney it would be difficult to make out anything abnormal. With a slightly higher power one gets the impression that the majority of the tubules are dilated. They are all filled with granular detritus which probably represents albumin at least in part. The glomeruli also seem a little prominent. With a practiced eye even with a relatively low power one can guess that there are more nuclei there than there should be. With a higher power we can estimate from 50 to perhaps 80 per cent more nuclei in the majority of the glomeruli than there should be. Many of them are in clusters, so there is quite evidently endothelial proliferation. The tubules with this stain show comparatively normal looking epithelium. The cells are not so extensively vacuolated as we see them in lipoid nephrosis, although here and there it is possible to pick up a few vacuolated cells. With a fat stain it is obvious that there is an extensive fat deposit. We can make out the reddish-orange granules in a very considerable proportion of the convoluted tubules.

For contrast I will show another case which histologically is more typical of lipoid nephrosis. With a low power I think it is obvious that there is even more dilatation of the tubules. With a higher power it is quite obvious that the tubular cells are much more extensively vacuolated, the vacuoles consisting almost entirely of fat. The glomeruli show distinctly less nuclear proliferation, although one cannot claim that they are absolutely normal. This case also showed pretty generalized fat deposits throughout, some of the most striking ones in the liver. With another stain which is designed to bring out the very minor changes in the glomeruli, the glomeruli in general look surprisingly normal.

From a histologic point of view this case is about like most of the "nephrosis" cases we see. It was one in which the nephrotic syndrome certainly predominated. There were, however, even clinically a few suggestions of glomerular involvement. Pathologically both glomerular and tubular involvement are easily recognizable. One could not classify the case clinically as pure nephrosis, though from the point of view of clinical treatment the way to handle the case was obviously to treat it as nephrosis.

DR. HIGGINS: Do you find that he had any pneumonia?

DR. MALLORY: No pneumonia. There was a pneumococcus empyema. The ascitic fluid was also infected. The frequency with which these cases develop a pneumococcus infection in serous fluids is one of the most striking features of the disease.

DR. LORD: Dr. H. A. Christian (Trans. Ass. Am. Phys. XLIV, 1929) collected 18 cases in adults with the clinical course and postmortem findings consistent with the diagnosis of nephrosis.

DR. WILLIAM DAVID SMITH: Is not pure lipoid nephrosis an exceedingly rare thing?

DR. MALLORY: It probably is. There is much difference of opinion as to that point, with very good men on both sides.

DR. SMITH: Suppose this patient had got over this nephrotic episode; suppose he had lived ten years; don't you think he would eventually have shown the end stage of chronic glomerular nephritis?

DR. MALLORY: I think it is very possible.

DR. HOLMES: Was the heart enlarged at all?

DR. MALLORY: No, characteristically not.

A PHYSICIAN: Were there any changes in the thyroid? Didn't Dr. Wolbach show some changes in the thyroid?

DR. MALLORY: We were not able to make out any in this case.

A PHYSICIAN: How thick was the pus in the empyema cavity at the time of death?

DR. MALLORY: We found a marked fibrinous exudate on the pleural surfaces with a relatively thin predominantly serous exudate between.

A PHYSICIAN: Do you think that was due to the low white blood count?

DR. MALLORY: I am not sure about that. I should think it more probable that it was due to a preceding sterile effusion which was one manifestation of the edematous condition of the patient. When such an effusion later became infected it might well continue to show some of the characters of a transudate.

DR. HIGGINS: Did you examine the bone marrow?

DR. MALLORY: Yes. We could make out no very definite abnormalities there.

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THE TEACHING OF MEDICAL HISTORY

EVERY student ought to obtain, at some time during his four-year course in a medical school, an insight into the history of his profession. With an already over-crowded curriculum it does not seem advisable to add a definite course in medical history and most medical schools have arranged for this teaching, therefore, through the inauguration of voluntary exercises. These exercises are often given by one of the professors as a series of seminars, a method of teaching which probably reached its height, many years ago, under the leadership of the late Sir William Osler at the Johns Hopkins Hospital. He used his extensive library as a means of illustrating his informal talks, usually given Saturday evenings, at his house. A similar plan was employed, a few years ago, at the Harvard Medical School by Dr. E. C. Streeter. Other physicians, not owning the necessary books, have made use of either school or public medical libraries.

Dr. C. N. B. Camac, assistant professor of clinical medicine at the College of Physicians and Surgeons, Columbia University, New York, who is remembered by many as the editor of a splendid book entitled, "Counsels and Ideals from the Writings of William Osler," first published in 1905 and subsequently re-issued many times, has recently written an account of his methods of teaching medical history.* He gives his students a general background of medical history and points out to them certain trends illustrated by the important books related to the subject. At his seminar these books are usually exhibited and quotations often read from them. The conferences are informal, limited to ten or fifteen students, and no lectures are ever given. About an hour is devoted to the preliminary exercises, after which time the students remain for half to three-quarters of an hour, examining the books. Dr. Camac has found it convenient to use the College library.

His outline is excellent and should be used extensively in other medical schools. He has added, moreover, excerpts from a few of the important classics in medicine, forming an appendix to his book, and has listed the important references which should be used in connection with the various chapters of his text. By all who are interested in the history of medicine, especially by those who have tried to impart some of the spirit of our forefathers to the present generation, this book will be welcomed with great enthusiasm, for no other publication covers the ground in quite the same manner. It is hoped that it will lead to similar seminars elsewhere. In certain selected centers, moreover, such as the Johns Hopkins Medical School and the Welch Medical Library, advantage should be taken to establish a professorship of medical history and an active department of research.

To these two methods of teaching medical history, the seminar and the lecture, should be added a third, perhaps the most important method of all. It is what Dr. Garrison has described as "entering medical history through the back door" and it is the method so often used by Osler in his classes and on his rounds. Patients were rarely presented by Osler, nor was any disease discussed, without an allusion to the historical development of our knowledge of the condition under consideration. Such constant reiteration was continually stimulating to medical students and often set them off on a chase to verify a quotation or to re-read, in the original form, the classical description of a disease. This method is always possible and easy to apply, given the necessary historical-minded professor and the receptive student. The seminar and the more formal lectures, including a research center, while admirable, are not entirely necessary and should not be attempted except under very favorable auspices.

*Camac, C. N. B. Imhotep to Harvey: Backgrounds of Medical History. New York: Paul B. Hoeber, 1931. xxv + 324 pages. Price, $3.75.

NEW INSTRUMENT FOR LOCALIZED HEATING

Last December, in New York, a new portable electric fever-producing machine was demonstrated to members of the New York Electrical Society. This instrument, which was produced in the laboratories of the General Electric Company at Schenectady, makes it possible to raise the internal temperature of special body parts and is smaller than the high-frequency converter announced in the previous year. It is constructed on the same principle as a short wave radio transmitter, with the exception that the energy is concentrated between two circular condenser plates instead of being directed from an aerial. Its output is 200 watts, its chief function being for localized heating, such as the application of heat to joints.

A LETTER OF APPROVAL

It is encouraging to realize that thoughtful interest is being taken in the affairs of our Society, as evidenced by the letter from Dr. Francis P. Denny, published on page 710 of this issue. The practice of medicine, to use a hackneyed expression, is at the crossroads. We will never again see the type of practice which our fathers followed whether we wish it or not. The public, in its appreciation of what it needs, has advanced beyond that point; we ourselves, or the majority of us, have also advanced beyond it. Another generation will not be nourished in a creed outworn but will find newer, better, more useful channels into which to direct its energies. We cannot afford to lag behind; we must be the leaders in our own salvation, for the writing is clearly on the wall. The socialization of medicine has begun, and prevention and public health will be the new keynotes.

It is not our purpose, nor is it our function, to express approval or disapproval of any action of the Council or its committees. It is our function to aid in any way in establishing the prestige of our Society with the community in general.

THIS WEEK'S ISSUE

Contains articles by the following named authors:

Kellogg, Frederick. A.B., A.M., M.D. Harvard University Medical School 1931. Interne, University Hospital, San Francisco, California. Address: University Hospital, San Francisco, California. Associated with him is

White, Paul D. A.B., M.D. Harvard University Medical School 1911. Physician, Massachusetts General Hospital. Instructor in Medicine, Harvard. Address: Massachusetts General Hospital, Boston. Their subject is The Clinical Significance of Precordial Tenderness. The Relationship of Such Tenderness to Pain. Page 659.

Briggs, J. E. M.D. Boston University School of Medicine 1890. F.A.C.S. Surgeon-in-Chief, Massachusetts Memorial Hospitals. Professor of Surgery, Boston University School of Medicine. Address: 477 Beacon Street, Boston. Associated with him is

Whitaker, Lester R. M.D. Harvard University Medical School 1923. F.A.C.S. Assistant Visiting Surgeon, Massachusetts Memorial Hospitals. Associate Member, Evans Memorial for Clinical Research and Preventive Medicine. Instructor in Anatomy and Assistant in Surgery, Boston University School of Medicine. Address: 270 Commonwealth Avenue, Boston. Their subject is An Electrosurgical Method for Aseptic Anastomosis of the Intestine. Page 662.

Downing, John Godwin. A.B., M.D. Harvard University Medical School 1915. Instructor in Dermatology at Tufts College Medical School. Teaching Assistant in Dermatology at Harvard. Assistant Dermatologist, Boston City Hospital and Beth Israel Hospital. Dermatologist, St. Elizabeth's Hospital. Address: 520 Commonwealth Avenue, Boston. Associated with him is

Welch, Claude E. A.B., A.M. Student House Officer on the Pneumonia Service, Thorndike Memorial Laboratory. Address: Thorndike Memorial Laboratory, Boston. Their subject is Industrial Dermatoses and Their Treatment. Review of ten years' literature. Page 666.

Ballard, James F. Director, Boston Medical Library. Consulting Librarian, Boston City Hospital. Trustee, Milton Public Library. Secretary, Boston Medical History Club. His subject is Notes on Alexander Ramsay and His Anatomic Manuscripts. Page 681. Address: 8 The Fenway, Boston.

Morse, John Lovett. A.M., M.D. Harvard University Medical School 1891. F.A.A.P. Professor of Pediatrics Emeritus, Harvard Medical School. Consulting Physician at Children's Hospital, Infants' Hospital and Beth Israel Hospital. Member, New England Pediatric Society, American Pediatric Society, Association of American Physicians and Boston Obstetrical Society. His subject is Progress in Pediatrics. Page 683. Address: 319 Longwood Avenue, Boston.

The Massachusetts Medical Society

ATTITUDE OF THE COMMITTEE ON ETHICS AND DISCIPLINE ON PROPOSED REVISION OF THE MEDICAL PRACTICE ACT

To the Editor,
New England Journal of Medicine,
Boston, Mass.

Dear Sir:

In the *Journal* of March 3, 1932 is published a paper read by Dr. Stephen Rushmore, Secretary of the State Board of Registration in Medicine, before a meeting of the New England Medical Council on December 1, 1931, entitled "The Medical Practice Act." In the discussion which followed Dr. W. P. Bowers made a statement which gives a wrong impression of the views of the Committee on Ethics and Discipline, and I request the privilege of the columns of our official organ to point out the error. On page 468, column 1, last paragraph, Dr. Bowers stated: "There has been a movement in the Massachusetts Medical Society by the Committee on Ethics and Discipline to try to have the Massachusetts law changed so as to take from the Board of Registration the disciplinary powers which it has under the existing law, although since (sic) there is in the law a provision that an appeal from the decision of the Board may be made to the Supreme Court of the State." Later, page 468, column 2, paragraph 7, he states: "The proposed suggestion is to take the disciplinary power away from the Board and have it referred to the courts."

Such is not the suggestion of the Committee. Presumably you refer to remarks made by me as Chairman of the Committee on Ethics and Discipline to the Council of the Society, at its meeting on October 7, 1931, printed in the "Proceedings" in the *Journal* of October 29, 1931, when I reported the decision of the full bench of the Supreme Court of Massachusetts sustaining the verdict previously rendered by Justice Wait, which restored to one of our Fellows his license to practice,—previously revoked by the Board. My words were (*N. E. Jour. Med.* Oct. 29, 1931, page 845, column 1, paragraph 3): "The Committee (on Ethics and Discipline) feels very strongly that a very important aspect of this matter is the question whether the statutes under which the State Board of Registration is functioning are wise, or whether we should make some effort to change them"; and again (ibid., page 846, column 2, line 32 et sequ.) "It seems to me that this problem of the desirability of modifying the statutes so that any defendant physician whose registration has been cancelled or who has been disciplined by the State Board of Registration may have power of appeal to the Supreme Court should be considered and perhaps this Committee should take this whole matter under consideration and make recommendations to the Council." The Committee here referred to is the combined Committee on Medical Education and Medical Diplomas and on State and National Legislation which by vote of the Council is engaged in studying the Medical Practice Act. By invitation of this Committee, the Committee on Ethics and Discipline has met and conferred with it about the matter.

It is probably necessary to remind your readers that this decision of the full bench of the Supreme Court in this case defined for the first time the nature and scope of the review or revision of his case for which a physician convicted of misdemeanor by the State Board of Registration may petition the Supreme Court, stating clearly that he is not to be entitled to an "appeal", which would imply a re-trial on the facts and on the merits of the issues, but merely to a "petition for a review" of the proceedings already had before the Board, and that the decision of the Board "is to be examined with every reasonable presumption in its favor" and must be shown to be "clearly wrong" before it can be revised or reversed. Thus, as I have elsewhere stated, the defendant physician goes before the Court with the presumption of guilt upon his head and is debarred from the right to a re-trial of his case by calling, examining and cross-examining witnesses and by exercising the usual rights pertaining to an appeal to a higher court. It is this withholding from the physician of the rights guaranteed under the law to the meanest citizen which appalls the Committee on Ethics and Discipline and which called forth from counsel for the Society, Mr. Robert G. Dodge, a spontaneous and vigorous letter of protest (*N. E. Jour. Med.* Oct. 29, 1931, page 846).

It is evidently very easy to be confused upon the exact meaning and significance of the statute, for even you, Mr. Editor, say (*N. E. Jour. Med.* March 3, 1932, page 468, column 2, lines 1-3): "there is in the law a provision that an *appeal* from the decision of the Board may be made to the Supreme Court of the State" (italics mine), whereas your editorial writer says (*N. E. Jour. Med.* Oct. 8, 1931, page 735, column 2, lines 8-11) in discussing the decision by the full bench of the Supreme Court, ... "in the ordinary sense of appeal as re-trial on the facts by a higher tribunal, there is no appeal from the Board". Further confusion is added by the statement by Dr. Blumer, President of the New England Medical Council, in his discussion of Dr. Rushmore's paper, "that when the lawyers get into trouble they don't refer it to the courts; they have a disciplinary committee that takes care of the matter". This may be true of Connecticut, but it is emphatically not true of Massachusetts, where no lawyer may be disbarred from practice without a trial before the Supreme Court

of the State. It was precisely this difference in the status of physician and lawyer which attracted our attention.

I hope that, tiresome as the subject in general must have become to your readers, they will agree that this issue merits careful attention. The members of the Committee on Ethics and Discipline cannot agree with Dr. Rushmore when he says (*N. E. Jour. Med.* March 3, 1932, page 453, column 1, lines 30-32: "The administrative board of licensure merely licenses and unlicenses: it does not punish." They feel that the revocation of a license to practice, which brings ruin and disgrace upon a physician and want and misery to his family, constitutes more than "an element of punishment" (ibid., page 470, column 1, line 25). They are convinced that the power to inflict such a condign penalty should be safeguarded by the right of appeal to, and retrial by, the Supreme Court of the State.

Yours truly,

DAVID CHEEVER,
Chairman, Committee on Ethics and Discipline,
Massachusetts Medical Society.

MISCELLANY

THE NATIONAL CHILD HEALTH DAY

The keynote for May Day—National Child Health Day this year is "Support Your Community Child Health Program: It Protects Your Home." This represents an attitude toward child care which contrasts strongly with that which prevailed in George Washington's times. In those days a mother might count her twenty or more children recorded in the family Bible, but this list included perhaps fifteen who since babyhood had rested in the graveyard. Anodyne necklaces and strings of wolf's fangs were deemed to be sure promoters of teething, and the best physicians noted the condition of the moon when gathering herbs and concocting medicines. The desire for disinfection found expression in sprinkling with vinegar and proved sadly ineffective in efforts to prevent the spread of epidemics which so frequently took a heavy toll among adults and children. The neighborly deeds which tempered the struggle for survival affected the grown-ups rather than the children. A child's horizon was bounded by the life of his family. His health and protection were their responsibility.

Now, when perhaps a hundred families live on the ground which in Washington's day formed only a small parcel of one man's holdings, the group as a whole has become responsible for preventing the spread of infectious diseases, and for promoting health activities like recreation. It was with this in mind that Walter S. Gifford, Director, President's Organization on Unemployment Relief, said last November, "Public machinery directed to the protection of childhood, such as public health, welfare agencies, educational systems, should be the last to be affected by measures of economy."

In observing this year's keynote the importance of public machinery directed to the protection of child health is emphasized, and the general purpose of May Day is focusing the spirit of sharing and of responsibility toward one's neighbor, which has been aroused by unusual conditions, upon some of the most pressing health needs of children. Efforts, therefore, are being bent toward five specific objectives, together with the observance of the nineteen points of The Children's Charter.

As a first step toward this protection of childhood, endeavor is being directed toward having each child sheltered in its own home and sharing secure family life. With some of the larger cities reporting as many as one hundred evictions a day this objective alone presents a task for which the support of every thoughtful citizen in the community is needed.

A roof and home ties are not enough, however, for the growing child. The general purpose of May Day, then, includes for each child the essential food elements in each day's diet during 1932. Nutrition experts have told us what these are. Newspapers and magazines have given generous coöperation in spreading information about them, and through these channels readers throughout the country have been learning to choose nutritious foods at low cost. Organizations, too, have been effective in giving to individual families the important facts concerning the relation between child health and body-building foods. Indeed, this type of information has been widely distributed by federal agencies like the United States Children's Bureau and the Home Economics Bureau of the United States Department of Agriculture, by state and local agencies, and by private organizations like the American Child Health Association. The response has been so great that it is reasonable to conclude that the nation as a whole will have made a definite gain this year in understanding this particular aspect of child health. The means of communication which have been developed since George Washington's time have proved an asset to the nation's children.

Supplementing this second step in the general purpose of May Day is the aim to see that every child has an adequate amount of clean and safe milk. The necessity for at least a pint and a half of milk a day for every youngster has been stressed so persistently that May Day committees are long familiar with this minimum standard. They have become familiar also with practical suggestions for the use of milk in its cheaper forms. Much remains to be done, however, in the way of community effort to make milk safe and clean. According to the White House Conference on Child Health and Protection about half the nation's children are still exposed to milkborne epidemics in communities which do not require adequate pasteurization of their milk supply. Many May Day programs,

then, may well be directed toward safeguarding the milk which the children drink.

In order, however, that the growing child's body may make the fullest use of the food it gets, the child must have plenty of rest and sunshine. It follows, therefore, that May Day efforts this year include attention to the opportunities for recreation which each community affords its children. Tranquillity, despite radios and jazz, is essential to the growing child. And the newer knowledge of mental hygiene and psychiatry emphasizes the importance of protecting children from worry, of maintaining for them a peaceful environment. The attainment of such an objective offers a challenge to those who are truly interested in child health. Happy activity in the out-of-doors, for both parents and children, and more extensive use of libraries and museums, offer practical aids in any program aimed at this goal, while the Washington Bicentennial provides an opportunity for becoming acquainted with the greater number of games which children enjoyed two hundred years ago.

Since the proverbial ounce of prevention is in the long run most economical, the general purpose of May Day goes back to the beginnings of child health, that is, to adequate care of the mother before the child is born. The White House Conference pointed out that other nations surpass the United States in saving the lives of mothers and babies. In order then that each infant may be born healthy in 1932, of a healthy mother who will live to love her child and take care of her family, community programs established in behalf of child health and protection must of necessity include better facilities for prenatal, natal, and postnatal care.

Finally, May Day again focuses attention on the great charter of children's rights, developed by the White House Conference on Child Health and Protection. The nineteen points of The Children's Charter set forth objectives which may serve as guides to community efforts for years to come.—*Bulletin American Child Health Association.*

A RADIO HEALTH TALK

Give More Thought to Your Skin*

Most people think of the skin as simply an outside envelope of the body which holds the internal structures within. We rarely think of the skin as an organ such as the liver, stomach, kidneys or brain. However, it is perhaps the largest organ of the body and is extremely important in maintaining life and health.

The skin is virtually a machine whose delicate and intricate workings are invisible, an integral part of the body mechanism, having special and individual functions of its own to perform. It is a complex, elastic, fibrous structure covering the body and by means of numerous blood vessels, nerves, glands, and other structures is in close relationship with the organs enclosed by it. In its superficial architecture the skin is everywhere traversed by ridges and furrows which vary in different situations, in regulation arrangement and sizes. Fine furrows are particularly noted on the tips of the fingers and toes, where they form figures which so vary in each individual that they are now used as a definite means of identification. Many of the ridges in later life become what we call "wrinkles".

Hairs of various sizes are distributed practically over the entire body with the exception of the palms, soles and lips. The hairs vary in color, depending on individual and racial characteristics. On the surface of the skin we note so-called pores. These pores are the openings of the sweat and oil glands. The finger- and toe-nails are an outgrowth from the skin. The growth of a finger-nail is about 1/150 inch per day, and that of the toe-nail about one-half as rapid. It takes about 100 days to grow a finger-nail.

In the skin we find many other structures such as fibrous elements, subcutaneous fat, blood vessels, lymphatics, nerves, sense organs and muscles. In the layers of the skin we find a pigment which determines the color.

The skin performs five important functions: It is a secretory, a respiratory, a sensory, and a protective organ, and it regulates body temperature.

Some of the more interesting facts in connection with these aforementioned functions are that the skin is constantly eliminating sweat either in an invisible or a visible way, and while the skin, at times, feels quite dry there is a tiny film of moisture and natural body oil on its surface. The amount of water eliminated from the body by the skin in twenty-four hours is almost double that which is eliminated by the lungs and is in proportion to the temperature of the body as in fever when the body becomes covered with beads of perspiration. It has been estimated that the loss of moisture from the skin of a man clothed and at rest at a temperature of 89 degrees F. is about two and one-half quarts, and the discharge of carbon dioxide about seven grams in twenty-four hours, while after active muscular exercise the loss of moisture and carbon dioxide is many times greater.

The constant temperature of the body is maintained by the heat regulating function of the skin. The amount of heat which is lost from the surface of the skin by radiation, conduction and evaporation depends chiefly on the state of dilation of the cutaneous vessels and on the activity of the sweat glands.

The skin is the most extensive sensory organ of the body. Owing to the presence of nerve endings on the surface, it is sensitive to touch, pain, heat and cold, pressure and traction. These sensory spots vary in the type of response which results from stimulation, some being sensitive to pain and known as "pain spots", others to touch and known as "tactile spots", others to heat, cold, etc.

Because of its extent the skin is subject to many

*Sponsored by the Massachusetts Memorial Hospitals. Station WHDH, February 17, 1932, 11:30 A.M.

and varied diseases which are commonly called dermatoses. Time was when diseases of the skin were considered most obscure and one who was afflicted thereby was most unfortunate, because nothing could be done.

Modern medicine has set a rather rapid pace of progress. That branch which deals with skin diseases known as Dermatology now occupies an enviable position in this regard. Based on experience in private practice and the skin clinic of the Massachusetts Memorial Hospitals, the speaker knows of but few rare skin conditions which cannot be helped or cured. Many diseases originate within the skin itself and some are a manifestation of a diseased process in another part or parts of the body, but there are various external agents, harmless in themselves which may cause a disease of the skin. In this discourse discussion is limited to only a few of the external causes of skin disturbances.

Any injury which causes a scratch which is so superficial as to be scarcely noticeable by the naked eye may be sufficient for the entry of harmful microörganisms, which may penetrate the deeper parts of the skin and set up various types of skin irritation or diseases. Rubbing of the skin is often indulged in to relieve itching. As a matter of fact this rubbing tends to increase rather than relieve irritation, and if persisted in may produce a chronic thickening of the skin.

Apart from actual burns, heat may be responsible for a considerable number of skin irritations. It tends to produce at first only a transient flushing, but continued exposure may lead to permanent dilation of the blood vessels. It may cause excessive sweating, occasionally with a formation of sweat gland disease. It may be responsible for the peculiar mottling of the legs — usually seen in women—which results from the habit of "toasting" them before the fire.

Cold is responsible for chilblains in people with an impaired circulation and, when excessive, causes frost-bite. It causes a contraction of the skin muscles, an erection of hairs, the formation of so-called "goose skin", and a stasis in the superficial circulation which is well marked as a bluish mottling on the limbs of babies exposed to cold.

Sunlight may have an irritating effect on the skin causing certain forms of dermatitis and aggravating others. When concentrated, it may produce an acute inflammation of the exposed parts, known as solar-dermatitis; or when acting under a long period, it may give rise to degenerative conditions of the skin which may have unfortunate results.

These results occur quite independently of heat and are entirely due to the actinic rays at the violet end of the spectrum; pigmentation in the form of profuse sunburn or of freckles is also due to this cause and is an effort on the part of nature to protect the organisms from the harmful effect of the rays.

In spite of the old adage that "Cleanliness is next to Godliness" the former may be overdone, and may lead to deleterious changes in the skin. The skin is a protective organ and its protective function is due largely to the presence of natural oils, moisture and waxy horn-cells; if these be removed with soap and water the skin, especially when naturally delicate, becomes more susceptible to the attacks of microöorganisms, and to all forms of local irritation. The abuse of soap and water is directly responsible for many skin irritations, but on the other hand insufficient cleanliness is harmful as it allows dirt and discharges to collect and the natural oil of the skin to accumulate and become rancid, and renders the surface of the skin a more suitable soil for the growth of microörganisms, and more attractive to animal parasites.

Unsuitable or irritating clothing is sometimes the cause of cutaneous derangements. With delicate skin, woolen undergarments should be avoided, as their roughness is likely to cause irritation. While being almost non-absorbent they allow perspiration to collect which keeps the skin moist and sometimes offensive. The best material to wear next the skin is lawn or a fine cotton which is both smooth and absorbent, and if necessary woolen garments may be worn over it to provide the requisite warmth.

Various articles of apparel may give rise to dermatitis or be the means of spreading it; for example, an infant's binder may chafe the skin and when damp with offensive secretions may cause irritation; starched collars when old and rough may abrade the surface of the neck and may lead to boils; in warm weather too much clothing may cause an attack of prickly-heat; the interchange of caps among schoolboys may be responsible for the transmission of ringworm.

There are many other local irritants which may give rise to skin disturbances such as poisonous plants, ivy, sumac, etc., vegetable substances like croton oil, moulds, fungi, etc., the animal irritants of bites of insects, stings of wasps, jelly fish, caterpillars, etc., and the mineral irritants of fine dust.

Today much is being said about cancer. The skin is a common location for this malignant disease, which is oftenest called epithelioma. Cancer of the internal organs is often an obscure disease and may cause extensive destruction before it is recognized or diagnosed but this unfortunate circumstance should not occur in skin cancers because of the fact that the skin is always within our view.

Modern medicine stresses the fact that prevention of disease is paramount, and that early recognition of disease can frequently prevent serious consequences.

Skin cancers may arise from a great many sources. They usually occur on persons who are past middle life or what is called in medical parlance—"The Cancer Age", although there is an extremely malignant type called melanoma, which may occur during early life.

Among the common conditions which may give rise to malignant degeneration are chronic irritations of the skin, certain types of moles, birthmarks and warty growths. There is no disease in the category of medicine which causes more apprehension than cancer, because it is known to be destructive of life, but it may be said with but slight reservation that cancer of the skin when treated early and adequately has a more favorable outlook than cancer of any other location in the body.

Modern medical science has many modalities for treating this condition some of which are x-rays, radium, electro-coagulation and surgery.

A competent physician is the only person who can differentiate a benign or innocent lesion and one that is malignant, so avail yourself of his judgment early to preclude either misapprehension or unhappy results.

In Dermatology as in other branches of medicine there are many so-called incurable diseases. Psoriasis has always been regarded as one of these conditions. This is not a fact because most psoriatics can be helped. We hear of the "seven years' itch" which is usually scabies and can be cured in twenty-four hours. Acne or "pimples" can now be cured with x-rays. Lupus erythematosus, once an almost intractable disease, is now cured by injections of gold salts.

There are types of birthmarks and moles, many of which are innocent, but there are certain varieties which may degenerate later in life and give rise to cancer. The best time to investigate these lesions is when they are first noticed.

Generally speaking the care of the skin entails only the simplest principles of hygiene. The healthy skin should be kept clean so that its functions are not impaired. In so far as the skin differs in individuals, there is a variance in the texture. This is the reason why some skins are more resistant than others. However, ordinarily we can assume that in bathing, a mild, bland soap which does not irritate or cause dryness should be used. We should wear seasonable clothing and avoid climatic shocks, that is, exposure to sudden changes of temperature. The promiscuous use of cosmetics is contrary to good hygiene in so far as it may impair the normal functions of the skin.

In closing may I add a few suggestions for your careful consideration.

Any sore which fails to heal in two weeks should be regarded with suspicion. Call a physician who should ascertain the reason.

If you have an itching condition of the skin which similarly affects other members of the family, assume that you have a communicable skin disease. See the doctor.

The seven years' itch is a misnomer. It is usually scabies and can as a rule be cured in twenty-four hours.

If you are a person past forty years of age, having a chronic irritation on the skin, be suspicious of cancer.

Should it be cancer, your doctor will treat it or send you to someone for treatment. Do not put off going to your doctor. Remember you may be cured if you see your doctor sufficiently early. The golden hour for the treatment of cancer or any disease of the skin is now.

Prompt and early treatment will prevent days and weeks and sometimes years of suffering and many unnecessary deaths.

CONDITIONS AT THE NATIONAL HOSPITAL FOR LEPERS AT CARVILLE, LOUISIANA

A report of the conditions at the National Hospital for Lepers at Carville, Louisiana shows that in the last few years a growing number of lepers have been paroled and apparently cured. There is increased evidence of the possibility of dealing with leprosy in an effective way and the general atmosphere of the Carville Institute has become one of hopefulness among the inmates. Whereas in the early history of the institution it was sometimes difficult to persuade suitable cases to enter the Home, it is becoming more and more common for voluntary admissions to be sought. During the fiscal year ended June 30, 1931, 117,608 days of relief were furnished. The average daily population of the Home was 322, but the actual population progressively increased until, at the end of the year, a maximum of 337 was reached.

SOUTH END HEALTH PROGRAM

A health program has been set for the week of April 3 in the South End of Boston by the Health Guild and the Bay State Medical Association. Announcements will be made in the churches and a physician appointed by the Association will give a talk on health at either the morning or the evening service in the churches. A baby contest will be held in the rooms of the Boston Tuberculosis Association on April 4, 5 and 6. All babies are eligible. Health week will end with a mass meeting at the Everett School, Northampton Street, at 8 P.M. on April 8. The baby prizes will be awarded at this meeting.

THE COSTS OF MEDICAL CARE

Discussed at Meeting of Physicians and Laity at Academy of Medicine

Implications for 120,000,000 people of a five-year study of the distribution and costs of health service in the United States, the results of which will be released in November, were outlined recently at the New York Academy of Medicine, 2 East 103rd street, at a public meeting jointly sponsored by the Committee on Public Health Relations of the Academy and the Committee on Costs of Medical Care.

Far-reaching and vital changes that impend in the organization of the nation's health care were

foreshadowed in the facts presented by three authorities, members of the Committee on the Costs of Medical Care, although it was stated that no final conclusions should be drawn until the Committee makes its final report this autumn. This report, it was revealed at the meeting, is being awaited with great interest by both laymen and practitioners.

The speakers at the meeting, and their topics, were:

Richard M. Smith, M.D., of Boston—"Outstanding Facts from the Studies of the Committee on the Costs of Medical Care."

Allon Peebles, Ph.D., of Washington, D. C.—"The Unevenness of Distribution of the Costs of Medical Care."

Nathan B. Van Etten, M.D., of New York City—"The Social and Economic Problems Facing the Medical Profession."

Dr. John A. Hartwell, president of the Academy, presided at the meeting.

The enormous mass of data accumulated by the Committee, it was brought out by the speakers, revealed the following unsatisfactory conditions urgently requiring attention, both in the interest of the general public and for the sake of the physicians, dentists, nurses and the rest of the million and a half people engaged in the $3,000,000,000 health industry:

1. Not all of the people obtain all needed care (quantitatively and qualitatively), particularly preventive services.
2. The cost is unevenly distributed among the people, causing hardship to some while others pay little or nothing. (Because of the unevenness of incidence of illness, individual family budgeting of expenditures cannot solve this problem either for people of moderate means or for people of low economic status.)
3. The incomes of practitioners are frequently so uncertain, irregular and low as to constitute a grave problem.
4. Present methods of providing and paying for medical service are wasteful.

The provision of adequate medical service is as essential to the national welfare as is public education, it was pointed out by the speakers, who stressed the need for concerted action by the practitioners and the general public in remedying present unsatisfactory conditions, to the end that the Committee's work may not be lost.

For the first time, they publicly presented to the Academy findings obtained to date by the Committee on the Costs of Medical Care in its exhaustive investigation. The New York Academy of Medicine, for the past twenty years, has been studying the problems of public health and community relationships.

While the facts revealed by the speakers indicated that all is not well with the present provision of medical care, no specific recommendations were made on behalf of the Committee. No conclusions, it was pointed out, can be drawn until all the studies have been completed. The final report of the Committee to be published next November will contain specific recommendations based on all the evidence.

Dr. Smith outlined the work of the Committee since its formation in 1927. Its chairman is Secretary of the Interior Ray Lyman Wilbur, formerly dean of the Stanford University Medical School and President of Stanford University.

Its purpose is to study the problem of "the delivery of adequate, scientific medical service to all the people, rich and poor, at a cost which can be reasonably met by them in their respective stations in life".

It includes sixteen physicians in private practice; six representatives of the field of public health; twelve representatives of medical and dental schools, hospitals, nurses and the American Medical Association; six economists; and ten representatives of the public.

Its investigations are conducted by a research staff, with headquarters in Washington, under the direction of Dr. Harry H. Moore. Medical associations and other professional organizations are coöperating in the work being done.

Funds for the undertaking have been furnished by the Carnegie Foundation, the Milbank Memorial Fund, the Russell Sage Foundation, the Twentieth Century Fund, the Julius Rosenwald Fund, the Rockefeller Foundation, the New York Foundation, and the Josiah Macy, Jr., Foundation.

1,481,000 HEALTH WORKERS

There are about 130,000,000 cases of disabling illness in the United States each year and an equal number of illnesses not producing disability, Dr. Smith pointed out. To care for the nation's health there are a total of 1,481,000 workers, including 143,000 physicians, over 67,000 dentists, 200,000 trained nurses and 100,000 pharmacists.

Studies by the Committee, Dr. Smith said, including exhaustive investigations of all health activities in Franklin County, Vermont, a typical New England community; Shelby County, Indiana, a midwestern agrarian district; San Joaquin County, California, a far west rural and urban area; and Philadelphia, a typical large city, revealed such significant facts as the following:

1. Physicians receive only one-quarter to one-third the total expenditure for health care.
2. The amount spent for drugs and medicines is high.
3. Public health work obtains a small allocation of funds.

Dr. Smith went on to describe the various experiments that have been tried for bringing medical service to the public more thoroughly and efficiently. He described organized medical service provided by industrial organizations, citing the Committee's study of the Endicott Johnson Workers' Medical Service as a highly developed example.

"MUNICIPAL DOCTOR"

He also described the experiment, studied by the Committee, of certain rural communities in the province of Saskatchewan, Canada, which attacked the problem of obtaining good medical care for their citizens by employing or subsidizing medical practitioners as "municipal doctors".

"The municipal doctor system," Dr. Smith commented, "does not of itself completely solve the problem of distributing more equably the total costs of medical care in a community. Such distribution could be accomplished only by including in the system provision for complete medical care, including nursing, dentistry, and hospitalization, even if obtained from outside the municipalities. At present the most expensive illnesses — those requiring major surgery and hospitalization — are borne by a few individuals or families, except in the cases of indigent persons whose medical costs are met from community funds."

He also touched on organized medical service developed in connection with schools and universities, now being studied by the Committee; special facilities some hospitals are beginning to provide for people of moderate means; methods of payment for medical services by a distribution of the expense over large groups of people and over long periods of time, likewise to be reported on soon by the Committee; and group clinics formed by physicians themselves.

COSTS OF MEDICAL CARE UNEVEN

Costs of illness, including all types of service to 4,560 families residing in eleven states and two cities outside those states, and representing a wide range of economic and social groups, were cited by Dr. Peebles to show how the unevenness of the distribution of costs of medical care throws a badly-adjusted burden on the community.

His figures showed that in the income group from $2,000 to $3,000, less than one-third of the families bore three-quarters of the burden of the cost of illness; and nine per cent of the families had to spend one-tenth of their annual income—in many cases much more—for medical service. In other groups similar uneven distribution was shown.

EVIL EFFECTS OF UNEVEN DISTRIBUTION

The following results of "the uneven incidence of illness and the consequent uneven distribution of the costs of medical care," were listed by Dr. Peebles:

1. *Effects Upon the Professions and Institutions Providing Service:*
   a. Increase in the amount of charity work performed by physicians, dentists and hospitals.
   b. Reduced fees.
   c. Increased attention to business details making inroads on the professional time of the practitioner.
   d. Lowering of standard of living of practitioner because of reduced income.
2. *Effects Upon the Public:*
   a. Postponement of needed medical care.
   b. Necessity for patients to ask for free services or reduced fees.
   c. Exhaustion of savings and piling up of debts by some patients.
   d. Insufficient total funds for maintaining adequate medical care for all, because too few bear the burden.
   e. Undue criticism of the medical profession by patients who bear the brunt of costs.

20TH CENTURY SOCIETY, 19TH CENTURY PRACTICES

In an address giving some striking personal reflections on the medical scene, Dr. Van Etten said that the medical and allied professions, scientifically developed to the utmost degree, trail far behind the times in their social and economic relations with the public. He reviewed the contrasts between 19th and 20th century medical practice, and pointed to developments of vast import which he predicted will change the entire aspect of health care of the nation.

"Physicians practicing in the last half of the 19th century," he stated, "were still real individualists holding outstanding leadership in their communities—highly respected — consultants on every problem of family life—receiving small fees or no fees or fees in kind, such as chickens, eggs or potatoes — and suffering little competition from specialists.

"The science of medicine has developed much more rapidly than the art and the application of medicine," Dr. Van Etten said, remarking that, "reactionaries have dug their heels deeply into the soil of tradition and resisted modern change with every conservative argument."

HEALTH ADVERTISING BY EVERYBODY EXCEPT DOCTORS

The 20th century, Dr. Van Etten went on, has seen a tremendous development of sectarian groups of practitioners, who have gained public confidence to the extent of taking a total of $125,000,000 annually for their services.

There has also appeared a tremendous volume of national advertising on health subjects, by commercial and professional groups, some of it helpful, much of it misleading, "while the conservative ethics and traditions of our profession are timidly restraining greatly needed educational group advertising by honest and conscientious physicians".

"The 20th century is staging a most remarkable development of public consciousness of the vital importance of individual and community health," Dr. Van Etten continued.

"The dictum that 'Public Health Is Purchasable' and that 'Any community may within certain limits determine its death rate' has through continued reiteration been accepted not only as basic fact but also as an ultimate goal. The medical profession cherishes the ideal of lower mortality and lower

morbidity as its highest possible accomplishment."

Describing some of the multitudinous lay and professional groups, "all seeking basic facts and practical methods for the promotion of happiness and prosperity through public health," he said that there should be some coördinating machinery for these agencies, and educational agencies to disseminate the facts.

"Physicians are the servants of the sick, and the sick must be guaranteed good servants. Physicians are the poorly paid servants of the sick. Their sick employers are traditionally improvident—taking no account of tomorrow's need through accident, or infection, or family increase, or the decadence of age."

PUBLIC DEMANDS "FRONT"

All these difficulties are further complicated by the expense of a medical education, the cost of equipment, and the demand that physicians maintain expensive "front," Dr. Van Etten went on.

"I have not the slightest desire to prescribe a formula," he concluded, "but I believe that the average net incomes of physicians and the general satisfaction of the people of this country would be greatly improved by close organization and intensive development of all health elements under active medical leadership.

"The Committee on the Costs of Medical Care has no panacea for the economic wastes of sickness, but it is to be hoped that its collective data will of itself compel solutions which will promote sound advances in intelligent service to all classes of people and maintain high moral and material standards for the medical profession."

DR. LORENZ HAS SAILED FOR VIENNA

Dr. Alfred Lorenz, formerly of Austria, sailed on March 24 for Vienna. He was accompanied by his son and daughter-in-law. Dr. Lorenz will be remembered as the exponent of the so-called bloodless surgery. He made a demonstration in Boston several years ago and achieved great notoriety by his treatment of a Chicago child.

THE BEHAVIOR OF NASAL CILIA

A study of the continued activities of nasal cilia after death, at the Oscar Johnson Institute of Washington University by C. S. Linton, has shown that these cells continue to live and function for several hours and in the case of lower animals as long as four or five days after death. It is suspected that the cilia may be considered as an evidence of the evolution of mankind from a four-footed stage.

THE DANGERS OF FAT REDUCERS

The Department of Agriculture has issued a warning with reference to fat reducers containing thyroid extract or laxative drugs. It is shown in this report that thyroid extract is a dangerous drug and should be used only under the direction of a physician. This extract may cause a loss of weight in individuals who are suffering from certain diseases affecting the thyroid gland. Other drugs, such as poke root and certain cathartics, are known to have brought about diseased conditions which are more or less serious. This is another instance of "see your doctor first".

VITAMIN C FROM NARCOTINE

According to the investigations of Dr. Otto Rygh, his wife, Dr. Aagot Rygh, and Dr. Per Laland it appears that narcotine is one of the alkaloid poisons found in opium but, in spite of its name, does not have any narcotic effect. It is found in other plants and transformed into Vitamin C during the process of ripening of fruits and vegetables.

NEW YORK DEATH RATE

The lowest general rate of infant mortality ever recorded in New York was announced on March 13 by the State Department of Health. The new low January figure was 11.6 per 1,000 population as compared with 14.6 for 1931. Unfortunately the low death rate is being balanced by an exceptionally low birth rate.

THE YEAR'S RECORD OF CRIME

During the year 1930 it is reported that one out of every twelve adults in the State of New York was arrested. These figures have been brought to the attention of the public by Dr. Walter N. Thayer, Commissioner of the Department of Correction. The number of arrests totaled 747,760. Fortunately the condition is not so alarming as it might seem to be as many of these arrests have been repetitions and some of those arrested have been dismissed without proof of crime. The great number of arrests seem to be caused by minor infractions of the almost innumerable laws that have been enacted for the regulation of modern life. Dr. Thayer's study of crime tends to show that the wickedness of the cities is not to be compared with rural regions because the incidence of homicide is greater in country districts than in New York City, when measured in proportion to the population. The report seems to show that along with seasons of sport, harvest seasons and vacation seasons, there are crime seasons. Spring and summer constitute the larceny season. Homicide, robbery, burglary and forgery are predominantly crimes of the fall and winter.

ONTARIO AND CANCER

Among the encouraging matters relating to cancer it is noteworthy that in almost every country physicians and sociologists are directing their efforts toward the prevention and, where possible, the cure of cancer. The Ontario Cancer Commission has adopted an elaborate cancer program very much like that of the United States.

A report has been issued by Dr. J. M. Robb, Minister of Health, containing certain encouraging statements based on the opinions of Dr. Joseph C. Bloodgood of Baltimore and Dr. Claude Regaul of Paris. The problem in Ontario coincides with that of authorities throughout the world in that the treatment, to be effective, must be in the early stages before cancer has brought about irremediable conditions.

MENTAL HYGIENE AND RECREATION

The possibility of mental illness resulting from a lack of balance between recreation and work has been pointed out by Dr. Frank E. Leslie, Medical Officer in Charge of the Veterans' Administration Hospital at Perry Point, Maryland. Dr. Leslie's views are given in the current issue of the Administration's "Medical Bulletin," a digest of which appears in the United States Daily of March 12. The necessity of proper recreation has been recognized in dealing with the Veterans' Administration Hospitals and has been considered to be an important part of the therapeusis employed with these wards of the Government. The same principle applies in dealing with those members of the civilian population who may be suffering from mental sickness.

DOCTORS AND LIQUOR CHARGES

Further investigations in Brooklyn, New York, filed with the United States District Court, charge still more physicians with improper use of medicinal whiskey prescriptions. The informations are the result of an investigation by agents of the Department of Justice and the Treasury Department working under Assistant United States Attorney Leonard Greenstone.

DEATHS FROM ASPHYXIATION BY CARBON MONOXIDE

Deaths from asphyxiation by carbon monoxide are showing a marked increase, according to data contained in the statistics of several insurance companies. Figures showing the exact extent of the increase are not yet available but the gain of 1931 over 1930 is reported as very considerable. Many of the deaths have occurred in private garages as a result of operating automobile engines with doors and windows of the buildings tightly closed.

HARVARD DRINKING AT ITS LOW MARK

Reports published quoting Dr. Alfred Worcester, Professor of Hygiene at Harvard University, set forth that for more than one hundred years there has been a steady decline in the drinking of hard liquor by Harvard students. This decrease has been especially notable during the last seven years. Records were quoted showing that graduation day in 1778 was the scene of riotous confusion. The first move for temperance was during the Presidency of Charles William Eliot who made the condition that liquor should not be allowed in the University yard. This improved behavior on the part of college men is a cause for congratulation.

MORTALITY RATES

Telegraphic returns from 83 cities with a total population of thirty-six million for the week ending March 12, indicate a mortality rate of 13.4 as against a rate of 13.8 for the corresponding week of last year. The highest rate (23.2) appears for Trenton, N. J., and the lowest (8.1) for Yonkers, N. Y. The highest infant mortality rate (14.6) appears for Youngstown, Ohio, and the lowest for Canton, Ohio, Long Beach, Calif., Richmond, Va., Somerville, Mass., Tacoma, Wash., Waterbury, Conn., and Yonkers, N. Y., which reported no infant mortality.

The annual rate for 83 cities is 12.4 for the ten weeks of 1932, as against a rate of 14.2 for the corresponding period of the previous year.

LORD MOYNIHAN AND THE FUTURE OF MEDICINE

Throughout the civilized world Lord Moynihan stands as an exemplar of scientific and progressive medicine and at the recent dinner at the Royal College of Surgeons exhibited those traits of leadership which are inspired by visions of the future of medicine. A brief account of the exercises of that occasion, taken from the London *Times* of February 16, 1932 which appears below, will interest a large number of American surgeons who have been honored by the cordial regard of Lord Moynihan.

The Royal College of Surgeons of England held its Hunterian festival dinner at the College, Lincoln's Inn Fields, last night. Lord Moynihan, the President, was in the chair.

The toast "The Memory of John Hunter" having been honoured in silence,

The President proposed the toast of "The Guests." Referring to the presence of the Minister of Health, he said that Sir Hilton Young was one of the warmest friends of the medical profession. It was most necessary in connexion with medicine in this country today that there should be a post-graduate teaching hospital in London. The one thing which was going to keep the College alive was not the pursuit of old ideals, or being a great examining body and possessing a museum unrivalled in the world and a fine library, but it was that they should keep in touch with the new movements in the sciences allied to medicine, and they could only do that by allying the College as closely as possible with all available means of research. Sir Henry Wellcome, another of the guests, had done more than any living Englishman to advance the cause of research in connexion with medicine. Owing to the characteristic generosity and wisdom and foresight of a Fellow of the College, Sir Buckston Browne, they would soon be in possession of a re-

search institute built on the grounds of Charles Darwin's old house at Downe, Kent.

The Duke of Athol, referring to the new nursing home with which his name had been associated, said that the building was to be officially opened on Thursday by the Duchess of York, but a few weeks must elapse before they could take the full number of patients, as they were at present handicapped owing to the nurses having to be temporarily housed in the building instead of outside.

Sir Hilton Young, M.P., Minister of Health, also responded.

Lord Dawson of Penn proposed the health of "The Hunterian Orator," and Mr. Wilfred Trotter responded.

TENTH ANNUAL ADVISORY COUNCIL MEETING OF THE MILBANK MEMORIAL FUND 1932

An interesting experiment in "group thinking" and a comprehensive discussion of public health problems featured the program of the tenth annual meeting of the Advisory Council of the Milbank Memorial Fund, held on March 16 and 17 at The New York Academy of Medicine. The meeting opened with a general session of about fifty members and thirty guests addressed by Dr. William Henry Welch, Chairman of the Council, and John A. Kingsbury, Secretary of the Fund. Thereupon, departing from procedure in other years, the Council was divided into five group conferences, each with a chairman to guide the discussion and a *rapporteur* to summarize it. These conferences continued through luncheon into the afternoon.

One group, presided over by Surgeon General Hugh S. Cumming of the United States Public Health Service, discussed health centers in New York City, Boston, and Los Angeles County, California. Another group dealt with the education of health personnel, school health education, and policies in public information regarding the prevention of venereal diseases. Dr. Linsly R. Williams, Director of The New York Academy of Medicine, presided at the morning session, and Homer Folks, Secretary of the State Charities Aid Association, at the afternoon session of this group. Dr. Thomas Parran, Jr., New York State Commissioner of Health was a speaker.

A third group discussed tuberculosis in children, particularly in New York City, Cattaraugus County, New York, and Baltimore, Maryland. The use, under carefully controlled conditions, of the *Bacillus Calmette-Guérin* for immunization was reported on by Dr. William H. Park, of the New York City Department of Health. Dr. Charles J. Hatfield, Executive Director of Henry Phipps Institute, Philadelphia, presided. Dr. James Alexander Miller, of the College of Physicians and Surgeons, was a speaker.

Population studies absorbed the attention of one group, over which Dr. Robert E. Chaddock, of Columbia University, presided. There were reports on reproductive histories, differential fertility by social classes, and modes of research into the factors affecting human fertility. Dr. Raymond Pearl, of the Johns Hopkins University, was a speaker. Public Health nursing, particularly in Boston and New York, was discussed by a separate group, presided over by Miss Lillian A. Hudson, of Teachers College, Columbia University.

The *rapporteurs* summarized the group discussions for the respective Chairmen, who made reports the following day to the Council meeting in executive session.

During the afternoon of the same day Dr. Hsun-Yusn Yao gave an illustrated talk on the health demonstration at Ting Hsien, China, which the Fund is supporting, and of which he is the medical director. Following this the Council heard a discussion of the economic aspects of medicine and health, the principal speakers being Dr. R. M. Atwater, Commissioner of Health of Cattaraugus County, Dr. Louis I. Dublin, of the Metropolitan Life Insurance Company, and Dr. C.-E. A. Winslow of the Yale University School of Medicine.

A dinner given on March 17 by the Board of Directors of the Milbank Memorial Fund concluded this year's meeting of the Fund's Advisory Council. On this occasion Dr. William Henry Welch, of the Johns Hopkins University, formally resigned as Chairman of the Council, a position he had held since its organization in 1922. His successor is Dr. Livingston Farrand, President of Cornell University, who addressed the gathering. Mr. Albert G. Milbank, President of the Fund, greeted the guests on behalf of the Board. He then pointed out that the principles underlying preventive medicine could well be applied to problems in political economy, and made a plea for a clear perception of the social obligations of business and the need of practical idealism on the part of the individual.

While this dinner celebrated the tenth anniversary of the Advisory Council, the Fund itself is twenty-seven years old, having been incorporated in 1905.

TUBERCULOSIS DRIVE IN NEW YORK CITY

The New York Tuberculosis and Health Association has opened a city-wide educational campaign to seek the cause and prevention of tuberculosis. This campaign is in connection with the fiftieth anniversary of the discovery of the cause of tuberculosis by Dr. Robert Koch. This association was organized twenty-five years ago and will conduct an intensive campaign until the end of April with a lowered activity throughout the remainder of the year. The keynote of the message is "Tuberculosis causes Tuberculosis—every case comes from another—find the other case!"

THE APPOINTMENT OF DR. LELAND S. McKITTRICK

Dr. Leland S. McKittrick has been appointed head of the Surgical Staff of the House of the Good Samaritan.

ECONOMY IN HEALTH WORK

Reports are current that Dr. Herman Neils Bundesen of Chicago, who has had a long and creditable experience in health work, has suggested that economic conditions throughout the country warrant a reduction of appropriations for health administration. This does not seem to meet the approval of others who are interested in caring for the health of the people, as shown by an article in the *Boston Herald* by Dr. Francis G. Curtis, Chairman of the Newton Board of Health. Others including Dr. William H. Welch have commented on this attitude of Dr. Bundesen with the suggestion that diminution of appropriations for health work should not be considered except as a last resort even in times of economic depression.

A NEW MEDICAL CENTER IN PHILADELPHIA

Plans for the opening next autumn of the Philadelphia Institute for Medical Research, which will attempt to center and foster advanced study through affiliation and collaboration with all medical institutes of the city, have been announced by Dr. Judson Daland, its President, who is Professor of Medicine at the Graduate Medical School of the University of Pennsylvania.

The Director of the Institute will be in the person of Dr. Leonard G. Rowntree, now Director of Clinical Investigation of the Mayo Clinic at Rochester, Minnesota, and since 1916 Professor of Medicine at the University of Minnesota. Dr. Rowntree will proceed to Philadelphia in June and will arrange for the selection of the members of his staff. The opening of this Institute culminates ten years of effort by a group of Philadelphia physicians and their friends, as the organization was founded in 1922 following a centenary celebration of the birth of Pasteur.

GROWTH OF CANCER RETARDED

The *American Journal of Cancer* reported recently that experiments on animals showed that the functions of pituitary gland may have some influence in stimulating the growth of cancer. Drs. Howard A. Ball and Leo T. Samuels, assisted by Winea Simpson of the Research Laboratories of the College of Medical Evangelists, claim that the removal of the pituitary gland or the injection of certain dyes may diminish the activity of cancer. These investigations were carried out on the virus of what is known as chicken tumor No. 1. Another question has been raised with reference to the antagonism or dissociation of cancer and tuberculosis, but the evidence at hand seems to favor the idea that there is no positive assurance of any relation between the two.

HOSPITAL NURSING IN ENGLAND

A study of nursing organizations in hospitals in Great Britain has shown that there is great difficulty in procuring the requisite number of pupils because of a lack of appreciation of the necessity for understanding their needs, especially those of the probationers. The *London Lancet* has appointed a Commission to investigate the matter and has placed at the head Lord Crawford and an associate.

The first report was issued last autumn and concerned itself especially with the environment from which nurses are recruited, their formative influences and their reasons for entering the profession. The final report which has recently been released deals principally with hospital environment, discipline, diet, and the resented seclusion of the nurses together with suggestions for reforms. The report brings out that trained nurses may go out between 8 P.M. and 10 P.M. without special permission, but they must be in their bedrooms by 10 o'clock with lights out at 10:30.

The report recommends that conditions of service in the profession should be altered so as to attract a larger proportion of girls who in any case would stay in school until they are 18 and proposes maintenance grants during intermediate instruction for others.

The hospital food is also criticized in the average British hospital because of its monotony, careless preparation and unappetizing service.

This information is conveyed in a report to the *New York Times* dated March 23.

PSITTACOSIS APPEARS TO BE A THING OF THE PAST IN THE UNITED STATES FOR THE PRESENT

The United States Public Health Service has reported that there is very little danger in the importation of parrots at this time because of the disappearance of psittacosis and because of the sanitary restrictions which are being enforced with reference to the crates in which these birds are shipped.

MUCIN AND THE TREATMENT OF STOMACH ULCERS

A report from Chicago sets forth that a demonstration of the usefulness of mucin in treating stomach ulcers has been made before the Chicago Medical Society members of the faculty of the Northwestern University School of Medicine. The report indicates that with this treatment the recovery is more rapid and that the period of disability is materially reduced; further that recurrence has been prevented in a very large proportion of patients. The mucin is prepared from the gastric mucous membrane of swine.

RHODE ISLAND MILK

Rhode Island is making a special effort to provide its citizens with a high grade of milk through the careful supervision of the local herds, with the purpose of eradicating bovine tuberculosis and maintaining cleanliness of all buildings where milk is produced or handled. About 70% of the milk con-

sumed in Rhode Island is produced within the State, the total amount being 175,000 quarts daily, of which over 40,000 quarts is grade "A". The Rhode Island producers are convinced that there is a definite economy in the production of grade "A" milk according to the statutory limitations, because it is found that this quality is appreciated and the requisite price willingly met.

AN HONOR TO THE MEMORY OF DR. J. ARMAND BEDARD

On March 30 at 6 P.M. the friends of the former J. Armand Bedard met at the Boston City Club and listened to addresses by M. Lessard, Dr. George A. Boucher, Dr. Stanislaus Martel and Elie Vezina. The chief speaker was Rev. Engelbert Devincq, Professor of French literature and Latin at Assumption College, Worcester. This meeting was a tribute to the memory of Dr. Bedard, who was President of the Franco-American Historical Society from 1906 to the time of his death on January 26 of this year.

THE EFFECT OF NOISE ON THE ABILITY OF CHILDREN TO STUDY

Two hundred students in Riverdale-on-Hudson have been the subject of special tests to determine the effect of noise on the ability of children to think and study. The result of the experiment appears in the report of the Noise Abatement Commission made public March 16. According to the findings, averages scored by the boys in mental tests given under conditions of quiet, loud and moderate noises, indicate that loud noise is in all cases detrimental, and moderate noise becomes so after a short time.

The tests were applied for an hour a day over a period of a school week. No attempt to duplicate either the peak traffic or the sharp sudden disturbances to which the students are subjected was made. The student body was divided into two groups as similar in physical and mental age as possible. Each took tests in a different room and under different conditions during the four days, twice under quiet, once under moderate and once under loud noise. Quiet was defined as an ordinary level of room noise—30 to 35 decibles. Moderate noise was computed at 55 decibles and loud noise at 70. One peculiar fact brought out was that noise sometimes acts as a stimulant, because the subject is forced to expend a disproportionate amount of energy to overcome the irritation.

SMALLPOX IN CHINA

In addition to the havoc wrought by war, Shanghai is suffering from a smallpox pestilence of great intensity. The disease is so virulent that approximately half the cases thus far have proved to be fatal. This epidemic is the most widespread and has caused the highest mortality of any in this vicinity for many years. The resistance of the people is probably lowered by the famine in China as shown by the fact that the population is driven to eat the bark of trees, the chaff of thrashed grain and weeds according to Sir John Hope-Simpson, British Director of the China Famine Commission.

APPOINTMENT OF DR. WILLIAM A. BRYAN TO THE BOARD OF REGISTRATION OF NURSES

Dr. William A. Bryan, Superintendent of the Worcester State Hospital, has been appointed a member of the Massachusetts Board of Registration of Nurses.

MASSACHUSETTS LEGISLATIVE NOTES

The following bills have been given leave to withdraw:

HOUSE 741—Petition of Harvey G. Turner and Charles E. Shepard for amendments of the law relative to production, distribution and sale of milk and cream.

HOUSE 253—Petition of Marcus J. Levins that compensation of employees injured in industrial accidents be paid from the day of the injury.

CORRESPONDENCE

APPROVING THE ACTION OF THE COUNCIL

March 14, 1932.

Editor, the *New England Journal of Medicine*,

At its meeting on February 3, the Council of the Massachusetts Medical Society voted 55 to 49 not to accept the report of the Committee on Public Relations. The features of the report to which the Council objected were two votes of that Committee—One: "That it is the sense of this Committee that the State Department of Public Health is encroaching, wittingly or unwittingly, upon the general practice of medicine", and the other: "That it is the opinion of this Committee that the State Department of Public Health should not establish further hospitals as for the care, treatment or research of chronic diseases, such as Diabetes, Heart Diseases, Arthritis, Nephritis or any chronic disease."

This adverse vote by the Council has deeper significance than may appear at first sight. In reality it saved the Medical Society from being put on record as opposing, apparently for reasons of self-interest, certain measures obviously of public benefit.

It is related that when Wanamaker was Postmaster General he was asked why this country did not have a parcel post system like the European countries. His reply was: "There are four principal reasons," and as the four principal reasons he named the four largest express companies in the country. Thanks to the vote of the Council, a similar remark cannot be made of our Medical Society.

It is only human nature that a group like ours should oppose those changes which threaten to reduce their livelihood. The Committee on Public Relations has very well expressed our

natural reactions to these changes and it is perhaps a satisfaction to have had them do so.

Fortunately, however, the Council sensed the fact that we were drifting into a position at variance with the high standards which this Society has set for itself in always placing the interest of the public health before its own. It is nothing new for our profession to work for health measures that tend to reduce our income. We ought to be grateful to those members of the Council that held the Society to its own high standards.

Obviously it is only from the point of view of the public welfare that we are justified in passing judgment on these activities of the State. Can we say that the services of the State have not been of benefit to the public?

Those activities that have encroached most on private practice have been the infantile paralysis work and the cancer clinics. As a result of the work in these two fields we must admit that many persons have been given far better service than they would otherwise have had; some have had service who otherwise would not have had any; almost certainly there are fewer crippled children in the State, and at least a few individuals have been saved from death by cancer. Under such circumstances what right have we physicians to protest that the State is encroaching on our private practice?

We are opposed to State medicine but not for reasons of self-interest. We believe that under such a system the public would get inferior medical service, chiefly because we should lose that personal relationship between patient and physician which is so essential.

There is, however, a great deal of medical service where that personal relationship is not essential. For example, there is the laboratory and the x-ray work and there is immunizing against disease. Furthermore a diagnostic or consultation service may be used by the general practitioner without disturbing the personal relationship. Whether we like it or not there is bound to be an increase in the amount of service along these lines which governmental agencies will be called upon to supply. An intelligent public is out to get better medical care at less cost.

The Committee on the Costs of Medical Care is finding that a large proportion of our citizens are receiving very inadequate medical service. The report of this committee, soon to be issued, will emphasize the economies to be effected by the more extensive use of clinics and their recommendations will stimulate a popular demand for increased governmental activities in this field.

The duty of the medical profession is obviously to coöperate whole-heartedly in this great movement to secure adequate medical care for every citizen of the State. In fact, our profession should be the guiding force. We cannot do this, however, if, following the lead of the Committee on Public Relations, we try to establish this doctrine of non-encroachment and oppose every move which seems to encroach on private practice.

Finally there is that problem of chronic disease. The studies that have been made in this State show that as a result of one disease alone, arthritis, there are many thousands of individuals permanently incapacitated and invalided. Further, the orthopedists tell us that much of this crippling could have been prevented by adequate medical care. Here obviously is a situation and a challenge that must be met for reasons both of economy and humanity. In the absence of any great philanthropist coming forward to supply the need it is probable that the public will demand that the State do something about it. The Committee on Public Relations has seen this coming. The hostility, of some of its members, however, to these activities of the State is so great that regardless of unnecessary human suffering and the great economic loss, and without anything constructive to offer in its place, they are willing to go on record as unalterably opposed to the State meeting this great need.

Here again the vote of the Council saved the name of the Society.

Sincerely yours,
FRANCIS P. DENNY.

THE PROTECTION OF NURSES

The Commonwealth of Massachusetts
Department of Public Health
State House, Boston

March 21, 1932.

To Hospital Superintendents:

In a Massachusetts hospital a nurse in training has recently died of typhoid fever, apparently contracted from a patient with a condition somewhat later recognized as typhoid. This nurse had not been protected by antityphoid inoculations. Many of our best hospitals today insist that all nurses shall upon entering training be vaccinated against smallpox and immunized against typhoid and diphtheria. This recent death emphasizes again the value of these procedures. May we request your coöperation in this matter and urge that such procedures be made a part of the routine for all nurses not already protected. Please let us know if we can be of any help in this matter.

Yours truly,
GEORGE H. BIGELOW, M.D.,
Commissioner of Public Health.

RECENT DEATHS

APPLETON—DR. WILLIAM APPLETON died at his home, 74 Beacon Street, Boston, on March 21, 1932, in his eighty-fifth year. He was born in Nahant, Mass., the son of William and Emily Appleton. Three granddaughters, Miss Georgette A. Binney, Miss Susan J. Binney and Miss Esther H. Binney;

and three grandsons, William A. Binney, Robert H. Binney and Marshall W. Binney survive him.

He graduated from Harvard in 1872 and from the Harvard Medical School in 1877. He joined the Massachusetts Medical Society in 1874. His second wife, who was Miss Nina Hargous of New York, died several years ago.

Dr. Appleton had been retired from practice for a number of years.

STEVENS—Dr. James Herbert Stevens of Boston died on March 24. He was a graduate of the New York Homeopathic Medical College and Flower Hospital and was the house physician at the Hotel Copley-Plaza. He was born in Rochester, New Hampshire on June 11, 1871.

Dr. Stevens was formerly attached to the Malden Hospital and was in Cuba from 1895 to 1898 attached to the staff of General Gomez.

His wife, Charlotte A. (Brinton), and a brother, Dr. Parker Stevens of Alstead, New Hampshire, survive him.

NOTICES

RADIO HEALTH MESSAGES

April-May-June, 1932

Sponsored by the Public Education Committee of the Massachusetts Medical Society and the Massachusetts Department of Public Health.

Courtesy WBZ. Tuesdays, 4:20 P.M.

April
- 5 Headache
- 12 Infantile Paralysis
- 19 Appendicitis
- 26 How Are Your Arteries?

May
- 3 Physical Culture in School Children
- 10 The Dangers of Being Fat
- 17 The Deaf Child
- 24 Medical Care
- 31 Growth and Development

June
- 7 Prenatal and Maternity Service
- 14 New Findings in Oral Hygiene
- 21 Community Public Health
- 28 Communicable Diseases

State House Broadcast

Sponsored by the Massachusetts Department of Public Health.

Courtesy WEEI. Fridays, 12:30 P.M.

Health matters of public interest discussed by the Division Directors of the Department.

Radio Health Forum

Queries from the public are answered under the sponsorship of the Department of Public Health.

Courtesy WEEI. Fridays, 4:50 P.M.

Questions on Health and Prevention of Disease may be sent to Radio Health Forum, State Department of Public Health, State House, Boston.

AN ANNOUNCEMENT FOR PHYSICIANS

The Massachusetts Medical Society
Committee Room
8 The Fenway, Boston, Mass.
Telephone: Kenmore 2094

March 14, 1932.

Dear Doctor:

A two-day course covering the more important forms of malignant disease, is offered to the medical and dental professions of Massachusetts on April 5 and 6.

The major part of the clinics will be devoted to showing cured cases of cancer and these cases will be discussed with reference to their diagnosis and treatment. At some of the clinics early and alleviated cancers will also be shown.

It has been the aim of the Committee and of the several hospitals coöperating, to provide in this course definite instruction in the early diagnosis and treatment of malignant conditions in the locations in which they are most frequently met. The Committee hopes that it has succeeded in its effort to offer to the physicians and dentists of Massachusetts what they want.

The registration fee is $5.00, which includes admission to the clinics, the luncheon and dinner at the Boston City Club and transportation to Pondville for those attending this clinic who do not go in their own machines.

Tickets will be sent immediately upon request. Those who apply early will be assured of their choice of clinics as registration is limited.

Very truly yours,
William P. Graves. M.D.,
Chairman, Cancer Committee.

P.S. Make checks payable to Robert B. Greenough, Treasurer, and send to Massachusetts Medical Society, 8 The Fenway, Boston. Registrations should be sent to the office of the Massachusetts Medical Society immediately.

Cured Cancer Clinics for Physicians and Dentists

Conducted by the Cancer Committee of the Massachusetts Medical Society with the assistance of the Massachusetts Department of Public Health and the Massachusetts Branch of the American Society for the Control of Cancer.

Program

Free Hospital For Women
80 Glen Road, Brookline
Tuesday, April 5—9:30 to 12:00
Dr. William P. Graves and Associates
Physicians only

Palmer Memorial Hospital
195 Pilgrim Road
Tuesday, April 5—9:30 to 12:00
Dr. Daniel F. Jones and Associates
Alleviated cases will also be shown
Physicians only

Harvard University Dental School
188 Longwood Avenue
Tuesday, April 5—10:00 to 12:00
Dr. Leroy M. S. Miner,
Dr. Varaztad H. Kazanjian,
Dr. Henry J. Carney,
Dr. Harold A. Kent.
Surgical prothesis and demonstrations of precancerous lesions of jaw
Dentists only

Pondville Hospital
Wrentham
Tuesday, April 5—2:00 to 4:30
Dr. Ernest M. Daland and Associates
Alleviated cases will also be shown
Buses will leave Hotel Statler at 1.00 P.M.
Physicians only

Huntington Memorial Hospital
695 Huntington Avenue
Tuesday, April 5—2:30 to 5:00
Dr. Channing C. Simmons and Associates
Physicians only

Tufts College Dental School
416 Huntington Avenue
Tuesday, April 5—2:00 to 5:00
Dr. William Rice, Dr. Francis P. McCarthy, Dr. Charles M. Proctor, Dr. Richard H. Norton.
Dentists only

Dinner Meeting For Physicians and Dentists
Boston City Club
Tuesday, April 5—7:00 P.M.
Address—Dr. Halbert G. Stetson.
Address—Dr. William H. Gilpatrick.
Dental Exhibit—Dr. Arthur H. Estabrook.
What Can the Medical Profession Do About Cancer?—Dr. James Ewing.
The Importance of the Informed Public Opinion—Mr. John Finley.
Dr. William P. Graves, Presiding

Massachusetts General Hospital
Fruit Street
Wednesday, April 6—9:30 to 12:00
Dr. Robert B. Greenough and Associates
Physicians only

Boston Dispensary
25 Bennet Street
Wednesday, April 6—9:30 to 12:00
Dr. Joseph Colt Bloodgood, Dr. Harry Friedman and Associates.
Mouth Cancer in all Stages
Physicians and Dentists

Luncheon Meeting For Physicians and Dentists
Boston City Club
Wednesday, April 6—1:00 P.M.
What Can Surgeons Expect in the Way of Guidance in the Treatment of Cancer from Pathologists?—Dr. Simeon B. Wolbach.
How Best to Utilize Present Cancer Resources—Dr. Robert B. Greenough.
A Hopeful Note in Cancer—Dr. Timothy Leary.
Summary—Dr. William P. Graves.
Dr. Channing C. Simmons, Presiding

*PUBLIC MEETING**
At Symphony Hall
Wednesday, April 6—8:00 P.M.
The State Program—His Excellency, Governor Joseph B. Ely.
Boston's Interest in the Program—His Honor, Mayor James M. Curley.
An Informed Public as a Prerequisite to any Program—Hon. Ray Lyman Wilbur.
The Cure of Cancer—Dr. Joseph Colt Bloodgood.
Dr. George H. Bigelow, Presiding

SPEAKERS

His Excellency, Joseph B. Ely, Governor of Massachusetts
His Honor, James M. Curley, Mayor of Boston
Bigelow, George H., M.D., Commissioner, Massachusetts Department of Public Health
Bloodgood, Joseph Colt, M.D., Baltimore, Md.
Estabrook, Arthur H., M.D., American Society for the Control of Cancer, New York
Ewing, James, M.D., Memorial Hospital, New York
Finley, John, Editor, New York Times
Gilpatrick, William H., D.M.D., President, Massachusetts Dental Society
Graves, William P., M.D., Free Hospital for Women
Greenough, Robert B., M.D. Massachusetts General Hospital
Leary, Timothy, M.D., Tufts Medical School
Miner, Leroy M. S., D.M.D., Dean, Harvard Dental School
Rice, William, D.M.D., Dean, Tufts College Dental School
Simmons, Channing C., M.D., Collis P. Huntington Memorial Hospital
Stetson, Halbert G., M.D., President, Massachusetts Medical Society
Wilbur, Ray Lyman, M.D., Secretary of the Interior, Washington, D. C.
Wolbach, Simeon B., M.D., Harvard Medical School

PATHOLOGISTS

Dr. Tracy B. Mallory, Massachusetts General Hospital

*Tickets may be secured free by writing to the Boston Health League, 43 Tremont Street, Boston, or the Massachusetts Department of Public Health, State House. All seats reserved until 8:00 P.M.

Dr. Shields Warren, Palmer Memorial Hospital
Dr. Simeon B. Wolbach, Harvard Medical School

EXECUTIVE COMMITTEE

Dr. William P. Graves, Chairman, Cancer Committee, Mass. Medical Society
Dr. Channing C. Simmons, Chairman, Mass. Branch, American Society for the Control of Cancer
Dr. George H. Bigelow, Commissioner, Mass. Department of Public Health
Dr. Robert B. Greenough, Treasurer

The Cancer Committee of the Massachusetts Medical Society, The Massachusetts Branch of the American Society for the Control of Cancer and the Massachusetts Department of Public Health have issued a record of 175 cases of cured cancer which will be shown at the Cancer Clinics. This list is instructive and stimulating and should be read by all who are likely to have any contact with the cancer cases. It may be secured on application to the Cancer Committee of the Massachusetts Medical Society.

THE SECOND INTENSIVE EUROPEAN SUMMER COURSE IN SURGERY, GYNECOLOGY AND OBSTETRICS

The Second Intensive European Summer Course in Surgery, Gynecology and Obstetrics will be given in Vienna, Austria, in the summer of 1932, from July 10 to August 12, under the direction of Dr. George W. MacKenzie. This course ought to interest the beginner as well as those who have already had experience in this specialty, but who desire to improve themselves. Vienna is truly the center of medical learning for those interested in this specialty particularly. It was here that the cause of puerperal sepsis was first discovered as well as many other things of scientific interest to the surgeon. The course covers about 300 hours of intensive instruction by world famous authorities in their respective lines.

The Course in Surgery, Gynecology and Obstetrics consists of seven hours of clinical work and three hours of elective for twenty-nine working days. The clinical hours are amply demonstrated with interesting cases. The elective courses are on the cadaver, covering general surgery and the surgical specialties.

For further particulars address Dr. George W. MacKenzie, Director, 1724 Spruce Street, Philadelphia, Pa.

DR. VERNON P. WILLIAMS IS ASSOCIATED WITH DR. LAWRENCE K. LUNT

Dr. Lawrence K. Lunt announces that Dr. Vernon P. Williams has become associated with him in the treatment of the psychoneuroses, at Valleyhead, Concord, Mass.

THE STUDENTS OF TUFTS COLLEGE MEDICAL SCHOOL TO HAVE A DINNER

The students of Tufts College Medical School have arranged for a dinner at the University Club Monday, April 11, 1932, at 6:30 P.M. The heads of the various departments of the school will be present and will speak briefly. It is hoped that many alumni will attend. The toastmaster will be Dr. A. Warren Stearns, dean of the school. The student chairman is Edward S. Ramsdell.

MEDICAL CLINIC AT THE PETER BENT BRIGHAM HOSPITAL

At 3:30 P. M., on Thursday, April 7, in the Amphitheatre of the Peter Bent Brigham Hospital, a medical clinic will be given by Dr. Henry A. Christian, to which physicians are cordially invited. The clinics will be held regularly on Thursday afternoons.

LAWRENCE CANCER CLINIC

Lawrence, Massachusetts, March 19, 1932.

To the Physicians of the North Half of Essex County and Others:

Dear Doctors:

The regular Lawrence Cancer Clinic, to be held at Lawrence General Hospital, One Garden Street, Lawrence, upon Tuesday, April 5, at 9 A.M., will be a Demonstration Clinic with Channing C. Simmons, M.D., of Boston, Surgeon to Collis C. Huntington Memorial Hospital, Boston, present as consultant. You are invited to accompany any of your patients whom you desire shall have this service, or to send them with a note, and a report will be returned to you. This service is *gratis*. Your attendance at the Clinic is always welcome.

As a part of this Clinic an attempt will be made to show cured cases.

ROY V. BAKETEL, M.D.,
CHAS. J. BURGESS, M.D.,
FRED'K D. MCALLISTER, M.D.,
JOHN J. MCARDLE, M.D.,
HARRY H. NEVERS, M.D.,
THOS. V. UNIAC, M.D.,
J. FORREST BURNHAM, M.D.,
Chairman,
Committee.

CANCER MEETING AT LAWRENCE

On Friday, April 8 at 8 P.M. sharp, there will be held at the Oliver School Hall, 183 Haverhill Street, Lawrence, an assembly meeting for physicians and the public at which the following will speak.

The meeting will be in charge of Roy V. Baketel, M.D., of Methuen.

J. Forrest Burnham, M.D., will outline the work of the Lawrence Cancer Clinic for the past four years—(10 minutes).

Mrs. James F. Bailey of Andover will describe the work of the Cancer Educational Committee to date (10 minutes).

Miss Angie M. Richardson of Lawrence will tell the facts concerning the Social Service of the Clinic (10 minutes).

Mary R. Lakeman, M.D., of Boston will represent

the State Department of Health and mention its relations to the Cancer Clinic (10 minutes).

The principal speaker will be Robert B. Greenough, M.D., of Boston, a foremost authority on malignant disease, who will give a comprehensive review of the subject of Cancer as understood today.

All are invited.

NOTICES OF MEETINGS

NEW ENGLAND HEART ASSOCIATION CARDIAC COURSE

The sixth meeting of the Cardiac Course of the New England Heart Association for the season 1931-1932 will be held in the Boston Medical Library, (John Ware Hall) on Wednesday, April 6, at 4:30 P. M.

CARDIOVASCULAR SYPHILIS

1. Pathology. Dr. Tracy B. Mallory.
2. Diagnosis. Dr. Paul D. White.
3. Treatment. Dr. C. M. Smith.
4. Discussion. Dr. Samuel A. Levine.

All who are interested are invited to attend.

PAUL M. EMERSON, *Secretary.*

SOUTH END MEDICAL CLUB

April 12, 1932, will be the next date for the meeting of the South End Medical Club, the third Tuesday being a holiday, and the meeting will be held at the office of the Boston Tuberculosis Association, 554 Columbus Avenue, on the above date, at 12 noon. The speaker will be Frederick C. Irving, M.D., Professor of Obstetrics, Harvard Medical School, and Visiting Obstetrician, Boston Lying-in Hospital, and his subject, "Bleeding in Pregnancy."

The usual luncheon will be served at 1 o'clock. All physicians are cordially invited to attend.

GREATER BOSTON MEDICAL SOCIETY

A joint meeting of the Greater Boston Medical Society and the Beth Israel Hospital will be held on Tuesday, April 5, 1932, at 8.15 P.M., at the Beth Israel Hospital.

PROGRAM

Coronary Artery Disease and Other Causes of So-called Angina Pectoris. E. Libman, M.D., Professor of Clinical Medicine, College of Physicians and Surgeons, Columbia University, and Consulting Physician, Mount Sinai Hospital, New York City.

Discussion. Samuel A. Levine, M.D.

BERNARD I. GOLDBERG, M.D., *Secretary.*

WATERTOWN PHYSICIANS' SOCIETY

The regular monthly meeting of the Watertown Physicians' Society will be held Monday evening, April 4, at 8:30 P.M., at 128 Mt. Auburn Street.

Speaker: Dr. Frank L. Barton of the Massachusetts Memorial Hospitals.

Subject: Some Aspects of Thyroid Pathology.

Physicians are cordially invited to attend.

EUGENE F. GORMAN, *Secretary.*

NORFOLK SOUTH DISTRICT MEDICAL SOCIETY

The next meeting of the Norfolk South District Medical Society will be held April 7. The speaker will be Dr. Cecil K. Drinker of the Harvard School of Public Health. His subject will be "Asphyxiation and Artificial Respiration."

N. R. PILLSBURY, *Secretary.*

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital Amphitheatre (Van Dyke Street entrance), Tuesday evening, April 12, at 8:15 o'clock.

PROGRAM

The Army Medical Corps as a Career and Its Relation to the Civil Profession. Surgeon General Robert U. Patterson.

JOHN HOMANS, M.D., *Secretary.*

MASSACHUSETTS PSYCHIATRIC SOCIETY

The next meeting of the Massachusetts Psychiatric Society will be held at the Boston Psychopathic Hospital, at 74 Fenwood Road, Boston, April 29, 1932 at 8 P.M. Papers will be presented by Dr. Abraham Myerson and Dr. Gregory Zilboorg of New York.

Detailed announcement will appear later.

WINFRED OVERHOLSER, M.D.
Assistant Commissioner.

WILLIAM HARVEY SOCIETY

The next meeting of the William Harvey Society will be held on Friday, April 8, 1932, 8:00 P.M., at the Beth Israel Hospital.

Speaker: Dr. George Washington Crile, Director, The Cleveland Clinic.

Subject: "Biologic Indications for and End-Results of Denervation of the Adrenal Glands."

Chairman: Dr. Horace Binney, Professor of Surgery, Tufts College Medical School.

On April 15, Dr. Fred H. Albee of New York speaks for the William Harvey Society—it will be the last meeting of the year. His subject has just been changed to "Treatment of Fracture of the Hip" and it will be illustrated with motion pictures.

SOCIETY MEETINGS
CONGRESSES AND CONFERENCES

April, Autumn—International Postgraduate Courses in Berlin. See page 1169, issue of December 10.

April 4—Watertown Physicians Society. See notice elsewhere on this page.

April 4-8—The American College of Physicians. See notice on page 1232, issue of June 4.

April 5—Greater Boston Medical Society. See notice elsewhere on this page.

April 5—Lawrence Cancer Clinic. See page 714.

April 6—New England Heart Association. See notice elsewhere on this page.

April 7—Medical Clinic at the Peter Bent Brigham Hospital. See page 714.

April 5 to 8—Clinics for the Demonstration of Cured Cancer Cases. See page 486, issue of March 3, and page 712 of this issue.

April 8—Cancer Meeting at Lawrence. See page 714.

April 8—William Harvey Society. See page 715.

April 8, 15 and 22—Thomas W. Salmon Memorial Lectures. See page 650, issue of March 24.

April 11—Students of Tufts College Medical School to Have a Dinner. See page 714.

April 12—Harvard Medical Society. See page 715.

April 12—South End Medical Club. See page 715.

April 13—New England Dermatological Society. See notice on page 658, issue of March 24.

April 15—William Harvey Society. See page 715.

April 29—Massachusetts Psychiatric Society. See page 715.

May 9-13—American Medical Association, New Orleans, La.

June 6, 7, 8, and 9—National Tuberculosis Association. See page 598, issue of March 17.

June 8, 9, 10—Massachusetts Medical Society, Hotel Statler, Boston.

June 21-24—Catholic Hospital Association. See page 369, issue of February 18.

July 10 - August 12—The Second Intensive European Summer Course in Surgery, Gynecology and Obstetrics. See page 714.

September 19-22 — International Congress of Biliary Lithiasis. See notice on page 427, issue of February 25.

October 24-27 — American Public Health Association. See notice on page 1321, issue of December 31.

October 24-28—Inter-state Postgraduate Medical Association of North America. See page 39, issue of January 7.

DISTRICT MEDICAL SOCIETIES

Essex North District Medical Society

May 4—Annual meeting at Lawrence.

Essex South District Medical Society

April 6, Wednesday—Essex Sanatorium, Middleton. Clinic 5 P.M. Dinner 7 P.M. Speaker, Dr. Arthur P. Wakefield, State Department of Health. Subject: 10-Year Tuberculosis Program in the Public Schools.

May 5, Thursday—Censors' Meeting, Salem Hospital, 3:30 P.M.

May 10, Tuesday—Annual Meeting. The Tavern, Gloucester. Speaker and subject to be announced later. Ladies invited.

Franklin District Medical Society

May 10—Meeting at the Weldon, Greenfield, at 11 A.M.

CHARLES MOLINE, Secretary.

Middlesex East District Medical Society

May 11 (Unless otherwise announced)—At Woburn.

Norfolk District Medical Society

May—Annual Meeting, date and place to be announced.

May 5—Censors' Meeting for examination of candidates. Roxbury Masonic Temple, 171 Warren Street, Roxbury, 4 P.M. Fee $10.00 payable at time of examination. All candidates will have applications in the hands of the secretary one week prior to this date. All candidates from Medical Schools not on approved list of Society must have application complete two weeks prior to date of examination.

F. S. CRUICKSHANK, Secretary.

Norfolk South District Medical Society

April 7—See page 715.

May 5—Annual Meeting.

The time of all meetings is 12 o'clock noon, at the Norfolk County Hospital, South Braintree. Censors will meet on May 5 at 11:15 A.M. at the Norfolk County Hospital.

N. R. PILLSBURY, Secretary.

Suffolk District Medical Society

April 27—The Annual Meeting, Boston Medical Library. Election of Officers.

The Medical Profession is cordially invited to attend this meeting.

REGINALD FITZ, M.D., Vice President.
LELAND S. McKITTRICK, M.D., Secretary.

Worcester District Medical Society

Wednesday evening, April 13—Grafton State Hospital, North Grafton, Mass. 6:30—Dinner, complimentary by Grafton State Hospital. 7:45—Program to be announced later.

Wednesday afternoon and evening, May 11—Annual Meeting. Program to be announced later.

ERWIN C. MILLER, Secretary.

BOOK REVIEWS

Electrotherapy and the Elements of Light Therapy. By RICHARD KOVACS, M.D. Messrs. Lea & Febiger. Price $6.50.

This volume is just another of a large number of books which has appeared during the last few years on the subject of "Electrotherapy." The fundamentals of the various subdivisions remain unchanged and nothing much is introduced which differs in the main from what has already been published. The writing is clear, the illustrations are good and the book has been well put together by its publishers. Modern electrotherapy had its inception from the extensive use made of it in the government hospitals during the last War and it was this experience which gave so much real value to the books in this field which were written by those who had this exceptional contact. The subject matter is chiefly a repetition of what has already been presented.

The Practical Medicine Series—General Medicine Series 1931. Edited by GEORGE H. WEAVER et al. pp. 814. The Year Book Publishers, Chicago. Price $3.00.

This 1931 annual on general medicine pursues the same plan and purpose as its predecessors. Outstanding contributions from many fields have been condensed and classified to make possible a rapid survey of the year's progress. Editorial criticisms and comments, profusely scattered through the pages, furnish a satisfactory leavening of what might otherwise be a conglomerate of disconnected individual opinions.

The subject matter is divided into five main groups under the headings of Infectious Diseases; Diseases of the Chest; Diseases of the Blood, the Blood-making Organs, and the Kidney; Diseases of the Heart and Blood Vessels; and Diseases of the Digestive System and Metabolism. Of these the first is weaker than the others, owing to the inclusion of contradictory material without much editorial comment. The sections on the chest and heart are excellently arranged and edited. The reviewer emphasizes the compiler's intrusions because there can be but two purposes in referring to a book of this kind. The first is the obvious one of rapidly skimming carefully selected material from many sources; and the second is the equally valuable one of learning the opinions and reactions of well-known authorities on special aspects of medicine. In both these respects the present volume amply fulfills its aim, and is well worth its very moderate cost.